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     FILE 'HCAPLUS' ENTERED AT 13:53:46 ON 28 AUG 2009
L1         23672 S SIALIC OR POLYSIALIC OR COLOMINIC
L2       1312574 S ALDEHYDE OR PERIODATE OR OXIDIZED OR OXIDATION OR FUNCTIONALI
L3          2302 S REDUCING END
L4            33 S L1 AND L2 AND L3
L5            29 S L4 AND (PY<2004 OR AY<2004 OR PRY<2004)
L6        724420 S OXIDIZED OR OXIDATION OR PERIODATE
L7           661 S L1 AND L6
L8           588 S L7 AND (PY<2004 OR AY<2004 OR PRY<2004)
L9        126107 S ALDEHYDE
L10           46 S L8 AND L9
L11           45 S L10 NOT L5
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FILE COVERS 1907 - 28 Aug 2009  VOL 151 ISS 10
FILE LAST UPDATED: 27 Aug 2009  (20090827/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED:  Jun 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE:  Jun 2009

HCAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2009.

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information.  This enhancement may impact record import into
database management software.  For additional information, refer
to NEWS 9.

=> s sialic or polysialic or colominic
         23272 SIALIC
           839 POLYSIALIC
           305 COLOMINIC
L1       23672 SIALIC OR POLYSIALIC OR COLOMINIC

=> s aldehyde or periodate or oxidized or oxidation or functionalized or conjugated
or linked
        126107 ALDEHYDE
         16417 PERIODATE
        275926 OXIDIZED
        512534 OXIDATION
         63030 FUNCTIONALIZED
        124119 CONJUGATED
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L2     1312574 ALDEHYDE OR PERIODATE OR OXIDIZED OR OXIDATION OR FUNCTIONALIZED
                OR CONJUGATED OR LINKED

=> s reducing end
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                 (REDUCING(W)END)

=> s l1 and l2 and l3
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      24036151 PY<2004
       4803740 AY<2004
       4276681 PRY<2004
L5          29 L4 AND (PY<2004 OR AY<2004 OR PRY<2004)

=> d l5 1-29 ti ans bib
'ANS' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
CLASS ------- IPC, NCL, ECLA, FTERM
DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
              containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
              its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
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            its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
            structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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TI,IND; TI,SO.  You may specify the format fields in any order and the
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FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC
to view a specified Accession Number.
ENTER DISPLAY FORMAT (BIB):ti abs bib

L5   ANSWER 1 OF 29  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Sialic acid derivatives for protein derivatization and
     conjugation
AB   Derivs. are synthesized of starting materials, usually polysaccharides,
     having sialic acid at the reducing terminal end, in which the
     reducing terminal unit is transformed into an aldehyde group.
     Where the polysaccharide has a sialic acid unit at the non-
     reducing end it may be passivated, for instance by
     converting into hydroxyl-substituted moiety.  The derivs. may be reacted
     with substrates, for instance containing amine or hydrazine groups, to form
     non-cross-linked polysialylated compds.  The substrates may, for
     instance, be therapeutically useful drugs peptides or proteins or drug
     delivery systems.  Insulin and polysialylated insulin were tested for
     their ability to reduce blood glucose level in normal female T/O outbred
     mice (22-24 g body weight).
AN   2005:158700  HCAPLUS <<LOGINID::20090828>>
DN   142:240674
TI   Sialic acid derivatives for protein derivatization and
     conjugation
IN   Jain, Sanjay; Laing, Peter; Gregoriadis, Gregory; Hreczuk-Hrist, Dale
     Howard; Papaoannou, Yiannis
PA   Lipoxen Technologies Limited, UK
SO   PCT Int. Appl., 82 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 3
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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PI   WO 2005016974       A1     20050224    WO 2004-GB3511         20040812 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
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             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
             LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
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     EP 1654290          A1     20060510    EP 2004-768074         20040812 <--
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            IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK
     JP 2007501889         T     20070201    JP 2006-523058          20040812 <--
     RU 2333223            C2    20080910    RU 2006-107546          20040812 <--
     WO 2006016161         A1    20060216    WO 2005-GB3149          20050812
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
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             SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
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     EP 1789454            A1    20070530    EP 2005-794240          20050812
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     CN 101039964          A     20070919    CN 2005-80034509        20050812
     JP 2008510024         T     20080403    JP 2007-525353          20050812
     US 20070191597        A1    20070816    US 2006-568043          20061201 <--
     US 20080132696        A1    20080605    US 2007-660133          20070828
PRAI EP 2003-254989        A     20030812  <--
     WO 2004-GB3511        W     20040812
     EP 2005-251016        A     20050223
     WO 2005-GB3149        W     20050812
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OS   MARPAT 142:240674
OSC.G   1     THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
RE.CNT  4     THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5   ANSWER 2 OF 29  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Sugar chain asparagine derivatives, sugar chain asparagine, sugar chain,
     and processes for producing these
AB   An asparagine derivative of an α-2,3- linked sugar chain having
     11 to 7 monosaccharide units; an asparagine derivative of an α-2,6-
     linked sugar chain having fluorinated 11 to 7 monosaccharide
     units; and a sugar chain asparagine derivative which comprises a sugar chain
     asparagine in which the amino-group nitrogen of the asparagine has been
     protected by a lipid-soluble protective group and the N-acetylglucosamine on
     the non-reducing end side contains at least one
     fucose. are prepared by a combination of chemical synthesis and enzymic
     catalysis.
AN   2004:570039  HCAPLUS <<LOGINID::20090828>>
DN   141:105359
TI   Sugar chain asparagine derivatives, sugar chain asparagine, sugar chain,
     and processes for producing these
IN   Kajihara, Yasuhiro; Kakehi, Kazuaki; Fukae, Kazuhiro
PA   Otsuka Chemical Co., Ltd., Japan
SO   PCT Int. Appl., 112 pp.
     CODEN: PIXXD2
DT   Patent
LA   Japanese
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ----------------    ----   ----------  ----------------------  --------
PI   WO 2004058984       A1     20040715    WO 2003-JP16523         20031224 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
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LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA	2511190	A1	20040715	CA 2003-2511190	20031224 <--
AU	2003296067	A1	20040722	AU 2003-296067	20031224 <--
AU	2003296067	B2	20070823		
EP	1577397	A1	20050921	EP 2003-786249	20031224 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN	1714155	A	20051228	CN 2003-80104001	20031224 <--
CN	100413889	C	20080827		
JP	4219931	B2	20090204	JP 2005-509744	20031224 <--
US	20060228784	A1	20061012	US 2005-540503	20050725 <--
US	7304148	B2	20071204		
US	20080214798	A1	20080904	US 2007-976527	20071025 <--
PRAI JP	2002-373213	A	20021224	<--	
JP	2003-202708	A	20030728	<--	
WO	2003-JP16523	W	20031224	<--	
US	2005-540503	A3	20050725		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OS MARPAT 141:105359
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Synthesis and immunologic studies of conjugate vaccines made of modified gm3 antigens
AB GM3 is an important antigen on melanoma, and it is the mol. basis of many studies on therapeutic vaccines for melanoma. However, the major problem with GM3 is immunotolerance, i.e., it fails to introduce immune reaction in melanoma patients. To overcome this problem, the KLH-conjugates of sialyl N-modified GM3 antigens were prepared and studied. The key features of the synthesis were using the N-trifluoroacetyl sialic acid as the reaction intermediate for easier deprotection and further modification of GM3 and using an azido group at the reducing end of GM3 to facilitate the conjugation. Therefore, after glycosylation of 1-azido-2'3'6'-2,6-acetylated--A-lactose with peracetylated N-trifluoroacetylated sialic acid to get the protected GM3, the protection groups were removed and several acyls, e.g., propionic, n-butyric, i-butyric, phenylacetyl and 3,3,3-trifluoropropionic group, were introduced to the N-position. Finally, the azido group was reduced and linked to a 4-pentenoyl linker, which after ozonolysis was effectively conjugated with KLH by reductive amination. These conjugates were then studied in mice, which showed preliminarily to be more immunol. than the KLH conjugate of GM3.
AN 2003:179461 HCAPLUS <<LOGINID::20090828>>
TI Synthesis and immunologic studies of conjugate vaccines made of modified gm3 antigens
AU Guo, Zhongwu; Pan, Yanbin
CS Department of Chemistry, Case Western Reserve University, Cleveland, OH, 44106, USA
SO Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), CARB-063 Publisher: American Chemical Society, Washington, D. C.
CODEN: 69DSA4

DT Conference; Meeting Abstract
LA English

L5 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI One-Step Synthesis of Biotinyl Photoprobes from Unprotected Carbohydrates
AB A simple and versatile approach for the preparation of carbohydrate photoprobes has been developed. By a single-step reaction at 37 °C, a biotinylated carbene-generating unit was introduced to the reducing end of unprotected carbohydrates. Micromole quantities of N-acetyllactosamine, Lewis X trisaccharide, and sialyl Lewis X tetrasaccharide were easily converted to their biotinylated photoreactive analogs, which enabled the nonradioisotopic chemiluminescent detection of the photolabeled products. Thus, a sequence of lectin photoaffinity labeling, from the probe synthesis to the detection of labeled protein, was readily accomplished within one week. Our strategy may be applicable to any aldehyde-bearing ligand.
AN 2000:543471 HCAPLUS <<LOGINID::20090828>>
DN 133:282003
TI One-Step Synthesis of Biotinyl Photoprobes from Unprotected Carbohydrates
AU Hatanaka, Yasumaru; Kempin, Uwe; Jong-Jip, Park
CS Institute of Natural Medicine, Toyama Medical and Pharmaceutical University, Toyama, 930-0194, Japan
SO Journal of Organic Chemistry (2000), 65(18), 5639-5643
CODEN: JOCEAH; ISSN: 0022-3263
PB American Chemical Society
DT Journal
LA English
OSC.G 36 THERE ARE 36 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Quantitation and isomeric structure analysis of free oligosaccharides present in the cytosol fraction of mouse liver: detection of a free disialobiantennary oligosaccharide and glucosylated oligomannosides
AB The amts. and isomeric structures of free oligosaccharides derived from N-linked sugar chains present in the cytosol fraction of perfused mouse liver were analyzed by tagging the reducing end with 2-aminopyridine followed by 2-dimensional HPLC mapping with standard sugar chains. Sixteen pyridylaminated (PA-) oligomannosides terminating with a PA-GlcNAc residue (GN1-type), three glucose-containing oligomannosides, and four oligomannosides terminating with a PA-di-N-acetylchitobiose (GN2-type) were detected. The total contents of the GN1- and GN2-type oligomannosides were 3.4 and 0.5 nmol, resp., per g of wet tissue. Maltooligosaccharides (dimer to pentamer) were also detected, the total content of which was 13 nmol per g of wet tissue. Besides these oligosaccharides, a PA-disialobiantennary sugar chain-the sole complex-type sugar chain-was also detected. All the oligomannosides identified had partial structures of Glc3Man9GlNAc2-p-p-dolichol, revealing that they were metabolic degradation products. Manα1-2Manα1-2Manα1-3(Manα1-6)Manβ1-4GlcNAc (M5B') was the major oligomannoside, suggesting that cytosolic endo-β-N-acetylglucosaminidase and neutral α-mannosidase participate in the degradation, because these enzymes have suitable substrate specificities for the production of M5B'. Degradation by these enzymes seems to be the main pathway by which oligomannosides are degraded in mouse cytosol; however, small amts. of Manα1-6(Manα1-3)Manα1-6(Manα1-3)Manβ1-4(GlcNAc)1-2 and related oligomannosides together with parts of their structures were also detected, suggesting that there is another minor route by which cytosolic free oligomannosides

are produced.
AN 1999:813076 HCAPLUS <<LOGINID::20090828>>
DN 132:192075
TI Quantitation and isomeric structure analysis of free oligosaccharides present in the cytosol fraction of mouse liver: detection of a free disialobiantennary oligosaccharide and glucosylated oligomannosides
AU Ohashi, Seiji; Iwai, Kazuma; Mega, Tomohiro; Hase, Sumihiro
CS Department of Chemistry, Graduate School of Science, Osaka University, Osaka, 560-0043, Japan
SO Journal of Biochemistry (1999), 126(5), 852-858
CODEN: JOBIAO; ISSN: 0021-924X
PB Japanese Biochemical Society
DT Journal
LA English
OSC.G 23 THERE ARE 23 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effect of 1-phenyl-3-methyl-5-pyrazolone labeling on the fragmentation behavior of asialo and sialylated N-linked glycans under electrospray ionization conditions
AB The advantages of labeling free N-linked oligosaccharides with 1-phenyl-3-methyl-5-pyrazolone (PMP), for high performance liquid chromatog. (HPLC) and electrospray ionization mass spectrometry (ESI-MS) are discussed. The study focuses on some asialo and sialylated sugars, and compares the HPLC and ESI-MS behaviors of the PMP-labeled substances vs. the native compds. It is pointed out that native free N-linked carbohydrates have very low affinities for the C18 reversed phases commonly used in HPLC. Native asialo oligosaccharides yield good ESI-MS sensitivity, although they are very susceptible to in-source collision-induced dissociation (CID), and the fragments are produced from any of the branches of the mols., i.e. do not give specific structural information. Native N-linked stds. bearing one sialic acid residue yield a 10-fold loss of ESI-MS sensitivity vs. asialo compds., and native sugars with two sialic acid moieties were not detectable. The PMP labeling of asialo and sialylated sugars yielded higher affinities for HPLC C18 columns and, even at the early stages of method development, it was possible to sep. three PMP-labeled stds. to a useful extent. In ESI-MS, PMP-asialo sugars did not yield a significant increase in sensitivity vs. the native species; however, fragmentation produced by in-source CID was more directed as all predominant fragment ions contained the bis-PMP label. This feature is particularly useful when structural determination of an unknown sugar is required. PMP-sialylated sugars gave rise to very clean and informative ESI mass spectra. The monosialo sugar yielded a 100-fold sensitivity improvement vs. its native analog and, in the case of the disialylated compound, a 100% improvement was obtained in the pos. mode. Most fragment ions were informative and contained the reducing end on the mols., thus facilitating spectral interpretation. The combination of PMP derivatization with online HPLC/ESI-MS is a promising method for the anal. of asialo and sialylated carbohydrate mixts.
AN 1999:275861 HCAPLUS <<LOGINID::20090828>>
DN 131:70550
TI Effect of 1-phenyl-3-methyl-5-pyrazolone labeling on the fragmentation behavior of asialo and sialylated N-linked glycans under electrospray ionization conditions
AU Saba, Julian A.; Shen, Xiaodong; Jamieson, James C.; Perreault, Helene
CS Chemistry Department, University of Manitoba, Winnipeg, MB, R3T 2N2, Can.
SO Rapid Communications in Mass Spectrometry (1999), 13(8), 704-711
CODEN: RCMSEF; ISSN: 0951-4198

PB John Wiley & Sons Ltd.
DT Journal
LA English
OSC.G 23 THERE ARE 23 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Novel proteoglycan linkage tetrasaccharides of human urinary soluble thrombomodulin, SO4-3GlcAβ1-3Galβ1-3(±Siaα2-6)Galβ1-4Xyl
AB O-linked sugar chains with xylose as a reducing end linked to human urinary soluble thrombomodulin were studied. Sugar chains were liberated by hydrazinolysis followed by N-acetylation and tagged with 2-aminopyridine. Two fractions containing pyridylaminated Xyl as a reducing end were collected. Their structures were determined by partial acid hydrolysis, two-dimensional sugar mapping combined with exoglycosidase digestions, methylation anal., mass spectrometry, and NMR as SO43GlcAβ1-3Galβ1-3(.+-.Siaα2-6)Galβ1-4Xyl. These sugar chains could bind to an HNK-1 monoclonal antibody. This is believed to be the first example of a proteoglycan linkage tetrasaccharide with glucuronic acid 3-sulfate and sialic acid.
AN 1999:152642 HCAPLUS <<LOGINID::20090828>>
DN 130:293030
TI Novel proteoglycan linkage tetrasaccharides of human urinary soluble thrombomodulin, SO4-3GlcAβ1-3Galβ1-3(±Siaα2-6)Galβ1-4Xyl
AU Wakabayashi, Hiroyuki; Natsuka, Shunji; Mega, Tomohiro; Otsuki, Naoki; Isaji, Mitsuko; Naotsuka, Masaaki; Koyama, Sadatoshi; Kanamori, Toshinori; Sakai, Kiyoshi; Hase, Sumihiro
CS Department of Chemistry, Graduate School of Science, Osaka University, Toyonaka, Osaka, 560-0043, Japan
SO Journal of Biological Chemistry (1999), 274(9), 5436-5442
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
OSC.G 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Structure of keratan sulfate from bonefish (Albula sp.) larvae deduced from NMR spectroscopy of keratanase-derived oligosaccharides
AB Structural details of keratan sulfate (KS) glycosaminoglycan, isolated from early-metamorphosing larvae (leptocephali) of bonefish (Albula sp.), are described. Bonefish KS was analyzed by first hydrolyzing the purified compound with KS endo-β-galactosidase (keratanase) from Pseudomonas spp., and then examining the resulting oligosaccharides with reversed-phase high-performance liquid chromatog. (HPLC) and 1H and 13C NMR (NMR) spectroscopy at 400 MHz. Spectral analyses were performed by COSY and HMQC. The results showed that a single oligosaccharide was produced whose structure is consistent with that of a tetrasaccharide containing two, β-linked, N-acetyllactosamine units. Enzymic evidence indicated that the internal galactose of the tetrasaccharide was O-sulfated at C-6, and that the reducing-end galactose was unsulfated. Spectral data for C-1 of the two galactose residues were consistent with the proposed sulfation pattern. In addition, spectral evidence confirmed that a C-6 on one of the sugars was sulfated; this sulfate was tentatively assigned to the internal galactose. Chemical studies have shown that an

additional sulfate group is present, but its assignment could not be confirmed, owing to the complexity of the spectral data. The known specificities of keratanase, and the production of a single tetrasaccharide, however, require that the addnl. sulfate reside on C-6 of either of the two available N-acetylglucosamine (GlcNAc) moieties, and that it cannot alternate between the two. The inability of β-N-acetylglucosaminidase from beef kidney to liberate GlcNAc from the tetrasaccharide provided preliminary support for the view that this sulfate is located on the nonreducing-end GlcNAc. We conclude that the native, high mol. weight (Mr=55,000) KS polymer from bonefish larvae consists of a disulfated disaccharide alternating with an unsulfated disaccharide in the adjacent N-acetyllactosamine unit, with this pattern repeating itself in a regular fashion along most, or all, of the chain. This structure could provide an explanation for the ability of bonefish KS chains to self-associate into dimers. Although the N-acetyllactosamine repeat is characteristic of KS in general, the sulfation pattern is different from that postulated for the well-characterized KS chains of lower mol. weight obtained from mammalian cornea and cartilage. An addnl. difference was the inability to demonstrate sialic acid in bonefish KS.

AN 1998:542469 HCAPLUS <<LOGINID::20090828>>
DN 129:245368
OREF 129:49969a,49972a
TI Structure of keratan sulfate from bonefish (Albula sp.) larvae deduced from NMR spectroscopy of keratanase-derived oligosaccharides
AU Pena, Michael; Williams, Clarrisa; Pfeiler, Edward
CS Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, 85287, USA
SO Carbohydrate Research (1998), 309(1), 117-124
CODEN: CRBRAT; ISSN: 0008-6215
PB Elsevier Science Ltd.
DT Journal
LA English
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Structures of the sugar chains of recombinant macrophage colony-stimulating factor produced in Chinese hamster ovary cells
AB The structure of the N- and O-linked sugar chains of recombinant human macrophage colony-stimulating factor (rhM-CSF) from Chinese hamster ovary (CHO) cells were studied. RhM-CSF is a homodimeric glycoprotein. Sugar composition anal. revealed that rhM-CSF contained 4.1 mol N-acetylgalactosamine, 10.3 mol N-acetylglucosamine, 5.0 mol mannose, 10.0 mol galactose, 1.4 mol fucose, and 11.8 mol sialic acid per mol. of the monomer. The N- and O-linked sugar chains liberated by hydrazinolysis were N-acetylated, and the reducing-end sugar residues were tagged with 2-aminopyridine. The pyridylamino (PA-) sugar chains thus obtained were purified by HPLC. The structures of the PA-sugar chains were analyzed by a combination of reversed-phase and size-fractionation HPLC, and exoglycosidase digestions, from which the structures of the rhM-CSF sugar chains were estimated to be as follows: monosialo biantennary sugar chain (9 mol%), monosialo fucosylbiantennary sugar chain (10 mol%), disialo biantennary sugar chain (30 mol%), disialo fucosylbiantennary sugar chain (28 mol%), disialo triantennary sugar chain (7 mol%), trisialo triantennary sugar chain (11 mol%), and trisialo fucosyltriantennary sugar chain (5 mol%) for the N-linked sugar chains, and asialo (27 mol%), monosialo (51 mol%), and disialo (22 mol%) Galβ1-3GalNAc for the O- linked sugar chains.
Sialic acid residues were linked to the N-linked

sugar chains through an α2-3 linkage.
AN 1997:506141 HCAPLUS <<LOGINID::20090828>>
DN 127:185904
OREF 127:35901a,35904a
TI Structures of the sugar chains of recombinant macrophage colony-stimulating factor produced in Chinese hamster ovary cells
AU Ushida, Yoshihiko; Natsuka, Shunji; Shimokawa, Yukiko; Takatsu, Zenta; Shimamura, Sei-ichi; Hase, Sumihiro
CS Department of Chemistry, Graduate School of Science, Osaka University, Osaka, 560, Japan
SO Journal of Biochemistry (1997), 122(1), 148-156
CODEN: JOBIAO; ISSN: 0021-924X
PB Japanese Biochemical Society
DT Journal
LA English
OSC.G 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L5 ANSWER 10 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Molecular dynamics-derived conformation and intramolecular interaction analysis of the N-acetyl-9-O-acetylneuraminic acid-containing ganglioside GD1a and NMR-based analysis of its binding to a human polyclonal immunoglobulin G fraction with selectivity for O-acetylated sialic acids
AB The influence of 9-O-acetylation of GD1a, yielding GD1a (eNeu5,9Ac2) with a 9-O-acetylated sialic acid moiety linked to the outer galactose residue, on the spatial extension and mobility of the carbohydrate chain and on recognition by a natural human antibody is analyzed. To study a potential impact of the O-acetyl group on the overall conformation of the carbohydrate chain, mol. dynamics (MD) simulations of oligosaccharide chain fragments of increasing length starting from the non-reducing end have been carried out for the first time in this study. They revealed a considerable loss in chain flexibility after addition of the internal N-acetylneuraminic acid onto the chain. Besides MD calcns. with different dielec. consts., the conformational behavior of the complete oligosaccharide chain of the 9-O-acetylated GD1a ganglioside was simulated in the solvents water and DMSO. These solvents were also used in NMR measurements. The results indicate that 9-O-acetylation at the terminal sialic acid does not influence the overall conformation of the ganglioside. An extended interaction anal. of energetically minimized conformations of GD1a (eNeu5,9Ac2) and GD1a, obtained during mol. dynamics simulations, allowed assessment of the influence of the different parts of the saccharide chains on spatial flexibility. Noteworthy energetic interactions, most interestingly between the 9-O-acetyl group and the pyranose ring N-acetylgalactosamine, were ascertained by the calcns. However, the strength of this interaction does not force the ganglioside into a conformation, where the 9-O-acetyl group is not longer accessible. Binding of GD1a (eNeu5,9Ac2) to proteins, which are specific for 9-O-acetylated sialic acids, should thus at least partially be mediated by the presence of this group. To exptl. prove this assumption, a NMR study of 9-O-acetylated CD1a in the presence of an affinity-purified polyclonal IgG fraction from human serum with preferential binding to 9-O-acetylated sialic acid was performed. The almost complete disappearance of the intensity of the 9-O-acetyl Me signal of the GD1a (eNeu5,9Ac2) clearly indicates that the assumed interaction of the 9-O-acetyl group with the human protein takes place.
AN 1996:666404 HCAPLUS <<LOGINID::20090828>>
DN 126:45995
OREF 126:9049a,9052a
TI Molecular dynamics-derived conformation and intramolecular interaction analysis of the N-acetyl-9-O-acetylneuraminic acid-containing ganglioside

GD1a and NMR-based analysis of its binding to a human polyclonal immunoglobulin G fraction with selectivity for O-acetylated sialic acids
AU Siebert, Hans-Christian; von der Lieth, Claus-Wilhelm; Dong, Xin; Reuter, Gerd; Schauer, Roland; Gabius, Hans-Joachim; Vliegenthart, Johannes F. G.
CS Tieraerztliche Fakultaet, Ludwig-Maximilians-Universitaet, Munchen, D-80539, Germany
SO Glycobiology (1996), 6(6), 561-572
CODEN: GLYCE3; ISSN: 0959-6658
PB Oxford University Press
DT Journal
LA English
OSC.G 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS RECORD (43 CITINGS)

L5 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Reductive amination of N-linked oligosaccharides using organic acid catalysts
AB The reductive amination of oligosaccharides with 8-aminopyrene-1,3,6-trisulfonate in several organic acids of varying strength was examined by capillary electrophoresis using laser-induced fluorescence detection. The relationship between the derivatization yield and the pKa of the catalyst (organic acids) is in agreement with the general acid catalysis of the hemiacetal ring opening and the Schiff base formation, one of which is considered to be the rate-determining step of the reductive amination reaction. Derivatization in the presence of organic acids having higher acidity than acetic acid, the most commonly used catalyst, resulted in significantly higher derivatization yield and the highest yield was attained with the use of citric or malic acid as catalysts. This effect was even more prominent for oligosaccharides having N-acetylglucosamine at the reducing end compared to the similar size linear glucose oligomers. Sialylated oligosaccharides were derivatized at 37°C for 16 h with only less than 10% loss of the sialic acid residues. The derivatization procedures were tested on the N-linked oligosaccharides released enzymically (peptide-N-glycanase F) from bovine fetuin and RNase B.
AN 1996:582769 HCAPLUS <<LOGINID::20090828>>
DN 125:296487
OREF 125:55367a
TI Reductive amination of N-linked oligosaccharides using organic acid catalysts
AU Evangelista, Ramon A.; Chen, Fu-Tai A.; Guttman, Andras
CS Beckman Instruments Inc., Fullerton, CA, 92634, USA
SO Journal of Chromatography, A (1996), 745(1+2), 273-280
CODEN: JCRAEY; ISSN: 0021-9673
PB Elsevier
DT Journal
LA English
OSC.G 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (19 CITINGS)

L5 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Isolation, biochemical and immunological characterization of two sea urchin glycoproteins bearing sulfated poly(sialic acid) polysaccharides rich in N-glycolyl neuraminic acid
AB Two different sialoproteins were isolated from the sea urchin shell by guanidine hydrochloride extraction in the presence of Triton X-100. The sialoproteins (SP I and SP II) were purified on DEAE-Sephacel and Sepharose CL-6B and separated from each other by d. gradient centrifugation. The ratio between recovered SP I and SP II was 1:4.5 and their Mrs 650 and 600 kDa, resp. They were degraded by neuraminidase, endoglycosidase F, and peptide N-glycosidase F resulting in fragments of similar relative mol. mass (Mrs). Although their protein cores have approx. the same

relative mol. mass of 500 kDa, they differ markedly in their contents of aspartic acid/asparagine, glycine, leucine, and phenylalanine, as well as the primary amino acid sequence of their N-terminal peptides. Carbohydrate analyses showed that the sialic acid content was higher in SP I (11.4% of dry tissue weight) than in the more prominent SP II (5.3%). Two types of carbohydrates, O-glycosidically-linked polysaccharides and N-glycosidically-linked oligosaccharides are present in both sialoproteins. SP I contains 10-11 polysaccharide chains whereas SP II contains 5-6. The polysaccharides are linked to protein cores via galactosamine, have approx. the same Mr of 12 kDa and contain 32-33 N-glycolyl neuraminic acid, 10-11 glucosamine, 6-7 sulfate, and 6-8 neutral monosaccharide residues. Sialic acid residues are organized in a poly(sialic acid) unit which is present in the non-reducing terminal of the polysaccharides and degraded by neuraminidase. Hexosamines, sulfates, and neutral monosaccharides are all constituents of the sialic acid free region of the chain near the reducing end. Two oligosaccharide populations were isolated from SP I, 1 major (70% of the total oligosaccharides) with Mr of .apprx.3 kDa and the other with Mr of 1.5 kDa. In SP II, however, only a 3-kDa oligosaccharide population was present. The oligosaccharides from both sialoproteins are N-glycosidically linked to asparagine via the glucosamine and contain mannose, glucosamine, galactosamine, and sialic acids. Antibodies against SP II were raised in rabbits and it was shown that the antigenicity of SP II was lost on either neuraminidase or trypsin digestion, indicating that both the poly(sialic acid) units of the polysaccharide and the protein core are antigenically active. As expected, SP II showed considerable cross-reactivity with SP I due to the common poly(sialic acid) structure. There were no significant reactivities of SP II and SP I with antibodies to bovine bone sialoprotein and osteopontin.

AN 1996:499769 HCAPLUS <<LOGINID::20090828>>
DN 125:191006
OREF 125:35671a,35674a
TI Isolation, biochemical and immunological characterization of two sea urchin glycoproteins bearing sulfated poly(sialic acid) polysaccharides rich in N-glycolyl neuraminic acid
AU Karamanos, N. K.; Manouras, A.; Anagnostiides, S.; Makatsori, E.; Tsengenidis, T.; Antonopoulos, C. A.
CS Dep. Chem., Univ. Patras, Patras, 26110, Greece
SO Biochimie (1996), 78(3), 171-182
CODEN: BICMBE; ISSN: 0300-9084
PB Elsevier
DT Journal
LA English
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L5 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Amino Acid Sequence and Carbohydrate Structure of a Recombinant Human Tissue Factor Pathway Inhibitor Expressed in Chinese Hamster Ovary Cells: One N- and Two O-Linked Carbohydrate Chains Are Located between Kunitz Domains 2 and 3 and One N-Linked Carbohydrate Chain Is in Kunitz Domain 2
AB Human tissue factor pathway inhibitor is a protease inhibitor with three tandem Kunitz-type inhibitory domains. The recombinant protein (r-hTFPI) was produced using Chinese hamster ovary cells, and its polypeptide and carbohydrate chain structures were analyzed. The complete amino acid sequence, composed of 276 residues, was determined using a protein sequencer after protease digestion and it was identical to that predicted from the cDNA sequence. Among three potential N-glycosylation sites, both Asn117 and Asn167 were fully N-glycosylated but Asn228 was not. Thr175 was also fully O-glycosylated, but Ser174 was partially O-glycosylated.

Carbohydrate composition and mass spectrometric analyses of the undecapeptide OG-11 (residues Leu170.apprx.Leu180) showed that two O-linked carbohydrate chains consisted of a type-1 core structure (Gal-GalNAc-Ser/Thr) with 0-3 mol. of N-acetylneuraminic acid(s). The N-linked carbohydrate chains were analyzed by two-dimensional carbohydrate mapping combined with sequential glycosidase digestion, after the reducing-ends of carbohydrate residues were tagged with 2-aminopyridine and non-reducing-end sialic acids were removed with sialidase. All the N-linked structures in r-hTFPI were complex-type carbohydrate chains with one fucose residue attached to the reducing-end GlcNAc and consisted of bi-, tri-, and tetraantennary carbohydrate chains in the ratio 1.9:1.3:1.0. Fucosylated tri- and tetraantennary carbohydrate chains with one or two N-acetyllactosaminyl repeats were also found (30% of carbohydrate chains determined). Thus, the region between Kunitz domains 2 and 3 encoded by exon 7 was highly glycosylated by two O-linked carbohydrate chains at Ser174 and Thr175 and one N-linked carbohydrate chain at Asn167. These results indicated that the region is occupied by a cluster of three bulky and acidic carbohydrate chains.

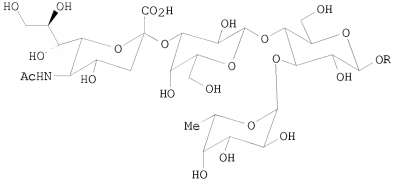
AN 1996:262799 HCAPLUS <<LOGINID::20090828>>
DN 124:336618
OREF 124:62345a,62348a
TI Amino Acid Sequence and Carbohydrate Structure of a Recombinant Human Tissue Factor Pathway Inhibitor Expressed in Chinese Hamster Ovary Cells: One N- and Two O-Linked Carbohydrate Chains Are Located between Kunitz Domains 2 and 3 and One N-Linked Carbohydrate Chain Is in Kunitz Domain 2
AU Nakahara, Yo; Miyata, Toshiyuki; Hamuro, Tsutomu; Funatsu, Akinobu; Miyagi, Masaru; Tsunasawa, Susumu; Kato, Hisao
CS Chemo-Sero-Therapeutic Research Institute, Shimizumachi, 668, Japan
SO Biochemistry (1996), 35(20), 6450-9
CODEN: BICHAW; ISSN: 0006-2960
PB American Chemical Society
DT Journal
LA English
OSC.G 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)

L5 ANSWER 14 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Detailed oligosaccharide structures of human integrin α5β1 analyzed by a three-dimensional mapping technique
AB Structures of N-linked oligosaccharides obtained from human integrin α5β1 are described. Integrin α5β1 (4.5 mg) was purified from human placenta and digested using trypsin and chymotrypsin. N-linked oligosaccharides were released from the glycopeptides by digestion with glycoamidase A (from almond). The reducing ends of the oligosaccharides were derivatized with 2-aminopyridine. The pyridylamino-oligosaccharides were separated and these structures were identified by a three-dimensional HPLC mapping technique on three kinds of HPLC columns [Takahashi, N., Nakagawa, H., Fujikawa, K., Kawamura, Y. & Tomiya, N. (1995) Anal. Biochem. 226, 139-146]. Finally, 35 different oligosaccharide structures were identified, 10 of which were neutral, 6 mono-sialyl, 10 di-sialyl, 7 tri-sialyl and 2 tetra-sialyl. The molar ratio of neutral, mono-sialyl, di-sialyl, tri-sialyl and tetra-sialyl oligosaccharides was 20.8%, 24.8%, 27.7%, 18.1% and 8.6%, resp. High-mannose-type oligosaccharides accounted for only 1.5% of the total. The remaining oligosaccharides were all complex type. The most predominant structure was the diantennary di-α-(2,3)-sialyl fucosyl. Major linking of sialic acid was α-(2,3)-linkage, and over 50% of all oligosaccharides were fucosylated at the N-acetylglucosamine residue of the reducing end.
AN 1996:238079 HCAPLUS <<LOGINID::20090828>>

DN 124:310594
OREF 124:57411a
TI Detailed oligosaccharide structures of human integrin α5β1 analyzed by a three-dimensional mapping technique
AU Nakagawa, Hiroaki; Zheng, Mingzhe; Hakomori, Sen-itiroh; Tsukamoto, Yoshinori; Kawamura, Yoshiya; Takahashi, Noriko
CS Nakano Central Res. Inst., Nakano Vinegar Co. Ltd., Handa, 475, Japan
SO European Journal of Biochemistry (1996), 237(1), 76-85
CODEN: EJBCAI; ISSN: 0014-2956
PB Springer
DT Journal
LA English
OSC.G 31 THERE ARE 31 CAPLUS RECORDS THAT CITE THIS RECORD (31 CITINGS)

L5 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Synthesis, characterization and properties of sialylated catalase
AB Colominic acid (CA), a α-(2→8) N-acetylneuraminic acid (sialic acid) polymer (average mol. weight of 10 kDa) was activated by periodate oxidation of carbon 7 at the non-reducing end of the saccharide. The oxidized CA was then coupled to catalase by reductive amination in the presence of sodium cyanoborohydride. The extent of sialylation of catalase, estimated by ammonium sulfate precipitation as 3.8±0.4 (mean±S.D.) moles of CA per mol of catalase, did not improve significantly when depolymd. CA was used in the coupling reaction. At the end of the coupling reaction, sialylated catalase exhibited a two-fold (70%) retention of initial activity compared to enzyme controls (29-35%) subjected to the same conditions. Formation of sialylated catalase was confirmed by ammonium sulfate or trichloroacetic acid precipitation, mol. sieve chromatog. and SDS-PAGE electrophoresis. Enzyme kinetics studies revealed an increase in the apparent Km of the enzyme from 70.0 (native) to 122.9 mmol l-1 H2O2 (sialylated catalase) indicating a reduction of enzyme affinity for the substrate (hydrogen peroxide) on sialylation. Compared to native enzyme, sialylated catalase was much more stable in the presence of specific proteinases, completely resisting degradation by chymotrypsin and losing only some of its activity in the presence of trypsin. The increased stability conferred to catalase by sialylation agrees with similar observations on enzymes modified by other hydrophilic mols. (e.g., monomethoxypoly(ethyleneglycol)) and suggests that steric stabilization with the biodegradable polysialic acid may prove an alternative means to render therapeutic proteins more effective in vivo.
AN 1996:173057 HCAPLUS <<LOGINID::20090828>>
DN 124:254533
OREF 124:47033a,47036a
TI Synthesis, characterization and properties of sialylated catalase
AU Fernandes, Ana I.; Gregoriadis, Gregory
CS Centre for Drug Delivery Research, School of Pharmacy, University of London, 29/39, Brunswick Square, London, WC1N 1AX, UK
SO Biochimica et Biophysica Acta, Protein Structure and Molecular Enzymology (1996), 1293(1), 90-6
CODEN: BBAEDZ; ISSN: 0167-4838
PB Elsevier B.V.
DT Journal
LA English
OSC.G 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

L5 ANSWER 16 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Synthetic studies on sialoglycoconjugates. 52. Synthesis of sialyl Lewis X analogs containing azidoalkyl groups at the reducing end
GI



I

AB The synthesis of sialyl Lex epitope analogs in which the terminal N-acetylglucosamine residue of sialyl Lex determinant is replaced by a D-glucopyranose residue containing β-glycosidically linked azidoalkyl groups is described. Glycosylation of 2-(trimethylsilyl)ethyl O-(2,6-di-O-benzoyl-3,4-O-isopropylidene-β-D-galactopyranosyl)-(1→4)-2,6-di-O-benzoyl-β-D-glucopyranoside, prepared from 2-(trimethylsilyl)ethyl β-lactoside by 3,4-O-isopropylidenation and selective-O-benzoylation, with Me 2,3,4-tri-O-benzyl-1-thio-β-L-fucopyranoside gave the desired α-glycoside, which was converted title compds., e.g. I [R = (CH2)nN3, (CH2CH2O)2CH2CH2N3, n =2, 8].
AN 1994:299151 HCAPLUS <<LOGINID::20090828>>
DN 120:299151
OREF 120:52741a,52744a
TI Synthetic studies on sialoglycoconjugates. 52. Synthesis of sialyl Lewis X analogs containing azidoalkyl groups at the reducing end
AU Hasegawa, Akira; Fushimi, Koshiro; Ishida, Hideharu; Kiso, Makoto
CS Dep. Appl. Bioorg. Chem., Gifu Univ., Gifu, 501-11, Japan
SO Journal of Carbohydrate Chemistry (1993), 12(8), 1203-16
CODEN: JCACDM; ISSN: 0732-8303
DT Journal
LA English
OSC.G 23 THERE ARE 23 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)

L5 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Molecular mechanisms of capsule expression in Neisseria meningitidis serogroup B
AB A review with 32 refs. The enzymes and proteins for biosynthesis and surface translocation of the capsular polysaccharide of N. meningitidis serogroup B, which consists of α-2,8 linked polysialic acid, are expressed b a 24 kb chromosomal gene cluster (cps). Within cps five functional regions have been identified. Region A encodes all enzymes necessary for polysialic acid biosynthesis. The capsular polysaccharide, which avs. 200 NeuNAc residues in length, is synthesized completely intracellularly. The gene products of region B substitute the polysaccharide chains with a phospholipid at the reducing end. Phospholipid substitution is crucial for translocation of the polysaccharide to the cell surface, which is directed by the gene products encoded by region C. The region C encoded proteins share strong homologies to members of the ABC (ATP-binding cassette) superfamily of active transporters. The same ATP-dependent transport mechanism for capsular polysaccharides also seems to direct capsular

polysaccharides in H. influenzae and E. coli to the surface, suggesting a common evolutionary origin of capsule expression in these bacterial species.

AN 1993:577176 HCAPLUS <<LOGINID::20090828>>
DN 119:177176
OREF 119:31579a,31582a
TI Molecular mechanisms of capsule expression in Neisseria meningitidis serogroup B
AU Frosch, Matthias; Edwards, Ulrike
CS Inst. Med. Microbiol., Med. Sch. Hannover, Hannover, 3000/61, Germany
SO Polysialic Acid (1993), 49-57. Editor(s): Roth, Juergen; Rutishauser, Urs; Troy, Frederick A., II. Publisher: Birkhaeuser, Basel, Switz.
CODEN: 59FNAM
DT Conference; General Review
LA English
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L5 ANSWER 18 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Structure of the acidic N-linked carbohydrate chains of the 55-kDa glycoprotein family (PZP3) from porcine zona pellucida
AB N-linked carbohydrate chains of the major 55-kDa family, PZP3, of porcine zona pellucida glycoproteins are composed of neutral (28%) and acidic (72%) complex-type chains. The structures of the main components of the neutral chain have been established (Noguchi, S., et al., 1992). Here the structures of the acidic chains are reported. Only two kinds of acidic fragments were released from PZP3 by endo-β-galactosidase digestion following β-elimination of O- linked chains. 500-MHz one-dimensional and two-dimensional 1H-NMR spectroscopy revealed their structures to be Siaα(2-3)Galβ(1-4)[HSO3-6]GlcNAcβ(1-3)Gal and HSO3-6GlcNAcβ(1-3)Gal, showing that the sulfate-containing acidic chains are constructed with nonbranched N-acetyllactosamine repeats which have sialic acid(s) at the non-reducing end(s) and sulfate at the C-6 position of GlcNAc residues. The acidic N-linked chains obtained from PZP3 by hydrazinolysis were separated into diantennary chains (34%) and tri- and tetra-antennary chains (66%) by concanavalin-A - agarose gel chromatog. The diantennary chains and their sialidase digests were fractionated by DEAE-HPLC. From the analyses of the endo-β-galactosidase digests of each fraction, structures of the diantennary acidic chains were determined They are classified into four groups. The first group is the sialylated chains without the sulfated N-acetyllactosamine repeating unit. The other three groups have the chains of various lengths differing in the number of monosulfated N-acetyllactosamine unit. These chains are extended from the Manα(1-3) branch of the trimannosyl core in the second group, from the Manα(1-6) branch in the third group, and from both branches in the fourth group. The structural features of the tri- and tetra-antennary acidic chains are also presented.
AN 1992:607503 HCAPLUS <<LOGINID::20090828>>
DN 117:207503
OREF 117:35704h,35705a
TI Structure of the acidic N-linked carbohydrate chains of the 55-kDa glycoprotein family (PZP3) from porcine zona pellucida
AU Noguchi, Satoru; Nakano, Minoru
CS Grad. Sch. Sci. Technol., Chiba Univ., Chiba, 263, Japan
SO European Journal of Biochemistry (1992), 209(3), 883-94
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English
OSC.G 41 THERE ARE 41 CAPLUS RECORDS THAT CITE THIS RECORD (41 CITINGS)

L5 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Human factor IX has a tetrasaccharide O-glycosidically linked to serine 61 through the fucose residue
AB Unusual sugar chains (xylose (Xyl)-glucose (Glc) and (Xyl)2-Glc) linked to a serine residue in the epidermal growth factor (EGF)-like domains of human and bovine clotting factors VII (Ser-52), IX (Ser-53), and protein Z (Ser-53), in addition to bovine platelet glycoprotein thrombospondin have recently been discovered. There is now evidence of another modification in the first EGF-like domain of human factor IX, which proved to be a tetrasaccharide O-fucosidically linked to Ser-61. Two large peptides containing Ser-61 (positions 44-63), named hIX-GP1 and hIX-GP2, were first isolated from the lysyl endopeptidase-digest of human factor IX, by reversed-phase HPLC. Data on the component sugar anal. after pyridylamination (PA) and sialic acid anal. of the isolated peptides indicated that they contained 1 mol each of galactose (Gal), fucose (Fuc), N-acetylglucosamine (GlcNAc), and N-acetylneuraminic acid (NeuAc), in addition to Glc and Xyl. HIX-GP1 was further digested with asparaginyl endopeptidase, and two glycopeptides containing Ser-61, named N-3 (positions 59-63) and N-9 (positions 55-63), were isolated, resp. These glycopeptides were both composed of 1 mol each of Gal, Fuc, GlcNAc, and NeuAc but did not contain Xyl and Glc. Moreover, the data on β-elimination for N-9 and of the fast atom bombardment mass spectrometric anal. on peptide N-3 suggested the presence of a tetrasaccharide linked to Ser-61. An anal. of the PA-oligosaccharide released from hIX-GP1 by hydrazinolysis followed by pyridylamination revealed that the reducing end was PA-Fuc. All the results support the proposal that human factor IX has a novel tetrasaccharide consisting of 1 mol each of Gal, Fuc, GlcNAc, and NeuAc, which is O-glycosidically linked to Ser-61 through the Fuc residue.
AN 1992:485881 HCAPLUS <<LOGINID::20090828>>
DN 117:85881
OREF 117:14895a,14898a
TI Human factor IX has a tetrasaccharide O-glycosidically linked to serine 61 through the fucose residue
AU Nishimura, Hitoshi; Takao, Toshifumi; Hase, Sumihiro; Shimonishi, Yasutsugu; Iwanaga, Sadaaki
CS Grad. Sch. Med. Sci., Kyushu Univ. 33, Fukuoka, 812, Japan
SO Journal of Biological Chemistry (1992), 267(25), 17520-5
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
OSC.G 50 THERE ARE 50 CAPLUS RECORDS THAT CITE THIS RECORD (50 CITINGS)

L5 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of N-linked oligosaccharides by electrospray and tandem mass spectrometry
AB Electrospray and tandem mass spectrometry are used to characterize underivatized oligosaccharides that have been digested from asparagine side chains of glycoproteins. Oligosaccharides that contain sialic acids were detected with the best sensitivity in the neg.-ion detection mode whereas those that do not contain sialic acid were detected with the best sensitivity in the pos.-ion detection mode. The pos.-ion abundances of oligosaccharides were greatly enhanced in electrospray mass spectra by adding 10 mM sodium acetate or ammonium acetate to the sample solvent. Tandem mass spectrometry was used to determine primary structural features of the oligosaccharides. Methodol. that has been developed on branched high-mannose, hybrid, and complex carbohydrate stds. was applied to a mixture of oligosaccharides that were digested with N-glycanase from the glycoprotein, ovalbumin. The composition and relative abundances of individual oligosaccharides obtained from the electrospray

mass spectrum compare favorably to those obtained by anion-exchange chromatog.-/pulsed amperometric detection and by gel permeation chromatog. of the oligosaccharides after radiolabeling the reducing end of the carbohydrates. The oligosaccharide content of ovalbumin was independently determined from the heterogeneity observed in the electrospray mass spectrum of the intact 44-kDa glycoprotein. Comparison of the oligosaccharide compns. determined before and after enzymic digestion shows a selective digestion of high-mannose and low mol. weight oligosaccharides by N-glycanase.

AN 1992:403594 HCAPLUS <<LOGINID::20090828>>
DN 117:3594
OREF 117:747a,750a
TI Characterization of N-linked oligosaccharides by electrospray and tandem mass spectrometry
AU Duffin, Kevin L.; Welply, Joseph K.; Huang, Eric; Henion, Jack D.
CS Monsanto Co., St. Louis, MO, 63198, USA
SO Analytical Chemistry (1992), 64(13), 1440-8
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
OSC.G 65 THERE ARE 65 CAPLUS RECORDS THAT CITE THIS RECORD (65 CITINGS)

L5 ANSWER 21 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Structural analysis of a novel sialic-acid-containing trisaccharide from Rhodobacter capsulatus 37b4 lipopolysaccharide
AB Sialic-acid-containing lipopolysaccharides from Rhodobacter capsulatus 37b4 (S-form lipopolysaccharide), KB-1 (R-type lipopolysaccharide) and Sp 18 (deep R-type lipopolysaccharide) were investigated for the linkage and substitution of sialic acids. Methylation anal. and behavior towards acid and enzymic hydrolysis indicated a non-reducing terminal location of sialic acids in the R-type lipopolysaccharide of strain Sp 18, whereas an internal, chain-linked location of sialic acids was found in the lipopolysaccharides of strains 37b4 and KB-1. For these latter strains, methylation anal. revealed a substitution of sialic acids bo other sugars at position 7 for strain 37b4 and positions 4 and 7 for strain KB-1. In accordance with the chain-linked position of sialic acids, mild hydrolysis of R. capsulatus 37b4 lipopolysaccharide with acetic acid released a trisaccharide with sialic acid at the reducing terminus. Structural investigation of this trisaccharide by methylation anal., 1H- and 13C-NMR spectroscopy revealed the presence of the disaccharide Galα1-6Glc at the non-reducing end, probably with an α-anomeric configuration of the galactose residue, i.e. melibiose, β-glycosidically linked to position 7 of sialic acid. Therefore the structure Galα1-6Glcβ1-7Neu5AC is proposed for this core oligosaccharide from R. capsulatus 37b4 lipopolysaccharide.
AN 1992:147723 HCAPLUS <<LOGINID::20090828>>
DN 116:147723
OREF 116:24869a,24872a
TI Structural analysis of a novel sialic-acid-containing trisaccharide from Rhodobacter capsulatus 37b4 lipopolysaccharide
AU Krauss, Juergen Hinrich; Himmelspach, Karl; Reuter, Gerd; Schauer, Roland; Mayer, Hubert
CS Max-Planck-Inst. Immunbiol., Freiburg/Br., Germany
SO European Journal of Biochemistry (1992), 204(1), 217-23
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English
OSC.G 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

L5 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Identification of free glycan chain liberated by de-N-glycosylation of the cortical alveolar glycopolyprotein (hyosophorin) during early embryogenesis of the Medaka fish, Oryzias latipes
AB Medaka embryos at the stages of blastulation to organogenesis contained a free glycan, the structure of which is identical with the multiantennary N-linked sugar chain of L-hyosophorin mols. which were originally present in the cortical alveoli of the unfertilized eggs in their precursor high-mol.-weight form. The free glycan-enriched fraction was separated from L-hyosophorin by chromatog. on DEAE-Sephadex A-25 and Sephadex G-50 after removal of the sialic acid residues with exo-sialidase. Composition anal., 400-MHz 1H NMR spectroscopy, and pyridylamination-hydrazinolysis-nitrous acid deamination of the free glycan showed the presence of a di-N-acetylchitobiosyl structure at the reducing end, suggesting that the free glycan chain was derived from L-hyosophorin by the action of a specific peptide:N-glycosidase (PNGase). Combined with the previous finding of a hyosophorin-derived unique pentaantennary free glycan chain in the flounder embryo it is suggested that PNGase-catalyzed de-N-glycosylation of L-hyosophorin is required at a certain stage of embryogenesis for L-hyosophorin to play a yet undefined functional role during early development.
AN 1992:3907 HCAPLUS <<LOGINID::20090828>>
DN 116:3907
OREF 116:771a,774a
TI Identification of free glycan chain liberated by de-N-glycosylation of the cortical alveolar glycopolyprotein (hyosophorin) during early embryogenesis of the Medaka fish, Oryzias latipes
AU Seko, Akira; Kitajima, Ken; Inoue, Sadako; Inoue, Yasuo
CS Fac. Sci., Univ. Tokyo, Tokyo, 113, Japan
SO Biochemical and Biophysical Research Communications (1991), 180(3), 1165-71
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
OSC.G 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

L5 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Structures of the sugar chains of interferon-γ produced by human myelomonocyte cell line HBL-38
AB Interferon-γ produced by the human myelomonocytic cell line HBL-38 contained galactose, mannose, fucose, N-acetylglucosamine, and N-acetylneuraminic acid as sugar components. Sugar chains were liberated from interferon-γ by hydrazinolysis. Free amino groups of the sugar chains were acetylated and the reducing-end sugar residues were tagged with 2-aminopyridine under new reaction conditions in which no sialic acid residue was hydrolyzed. The pyridylamino (PA-) derivs. of the sugar chains thus obtained were purified by gel filtration and reversed-phase HPLC. Seven major PA-sugar chains were isolated and the structure of each purified PA-sugar chain was identified by stepwise exoglycosidase digestion and 500-mHz 1H-NMR spectroscopy. The structures of the major PA-sugar chains were of the biantennary type, to which 0-2 mol of fucose and 1-2 mol of N-acetylneuraminic acid were linked.
AN 1989:437619 HCAPLUS <<LOGINID::20090828>>
DN 111:37619
OREF 111:6408h,6409a
TI Structures of the sugar chains of interferon-γ produced by human myelomonocyte cell line HBL-38
AU Yamamoto, Shigeto; Hase, Sumihiro; Fukuda, Shigeharu; Sano, Osamu; Ikenaka, Tokuji

CS Coll. Sci., Osaka Univ., Toyonaka, 560, Japan
SO Journal of Biochemistry (1989), 105(4), 547-55
CODEN: JOBIAO; ISSN: 0021-924X
DT Journal
LA English
OSC.G 65 THERE ARE 65 CAPLUS RECORDS THAT CITE THIS RECORD (65 CITINGS)

L5 ANSWER 24 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of N- and O-linked oligosaccharides of glycoprotein 350 from Epstein-Barr virus
AB Glycoprotein 350 (gp350), the major Epstein-Barr Virus (EBV) envelope glycoprotein, has extensive N- and O-linked oligosaccharide chains. To characterize these oligosaccharide chains, [3H]glucosamine-labeled gp350 was isolated from an EBV transformed marmoset lymphoblastoid cell line (B95-8) induced to replicate EBV. Radiolabeled Pronase-glycopeptides were fractionated by serial affinity chromatog. and O-linked oligosaccharides released by mild alkaline borohydride treatment. Virtually all (99%) N-linked oligosaccharides were of complex type, with a predominance of tri-tetraantennary vs. diantennary chains. A significant portion (28%, in term of radioactivity) of the tri-tetraantennary chains bound to leucoagglutinin-agarose, indicating an addnl. branch in β(1-6)-linkage to the trimannosyl core. N- linked oligosaccharides with such a branching pattern have not been previously described in any herpesvirus glycoprotein, but have been associated with neoplastic transformation. Half of [3H]glucosamine incorporated into gp350 was recovered in O-linked oligosaccharides. The smallest chains have a core βGal-GalNAc disaccharide structure. Most O-linked chains have two to three N-acetylglucosamine and one N-acetylgalactosamine residues, besides the N-acetylgalactosamine residue located at the terminal reducing end, suggesting a di- or tri-N-acetyllactosamine structure. Consistent with such a structure, the size of these chains, after sialic acid removal, was that of an heptasaccharide or larger.
AN 1989:402956 HCAPLUS <<LOGINID::20090828>>
DN 111:2956
OREF 111:575a,578a
TI Characterization of N- and O-linked oligosaccharides of glycoprotein 350 from Epstein-Barr virus
AU Serafini-Cessi, Franca; Malagolini, Nadia; Nanni, Mariella; Dall'Olio, Fabio; Campadelli-Fiume, Gabriella; Tanner, Jerome; Kieff, Elliott
CS Dip. Patol. Sper., Univ. Bologna, Bologna, 40126, Italy
SO Virology (1989), 170(1), 1-10
CODEN: VIRLAX; ISSN: 0042-6822
DT Journal
LA English
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L5 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Comparative study on O-linked oligosaccharides of glycoprotein D of herpes simplex virus types 1 and 2
AB Glycoprotein D1 (gD1) and D2 (gD2) of herpes simplex virus types 1 and 2, resp., were purified from infected HEp-2 cells labeled with [3H]glucosamine for 14 h followed by a 3-h chase using HD1 monoclonal antibody linked to Sepharose. O-Linked oligosaccharides were present in both glycoproteins. N-Acetyl[3H]galactosaminitol was the major labeled component in the oligosaccharides generated by mild alkaline borohydride treatment, demonstrating that N-acetylgalactosamine is at the reducing end of the oligosaccharides. These oligosaccharides consist of mono- and disialylated species with a predominance of the latter in gD1.

Size anal. and radioactive amino sugar composition strongly suggest that the galactosyl-N-acetylgalactosamine core is substituted with 1 or 2 sialic acid residues. In terms of [3H]glucosamine-derived radioactivity, O-linked oligosaccharides are less represented than N-linked oligosaccharides. The O-linked oligosaccharide number determination showed that gD1 and gD2 carry 2 and 3 chains, resp.

AN 1988:200501 HCAPLUS <<LOGINID::20090828>>
DN 108:200501
OREF 108:32841a,32844a
TI Comparative study on O-linked oligosaccharides of glycoprotein D of herpes simplex virus types 1 and 2
AU Serafini-Cessi, F.; Dall'olio, F.; Malagolini, N.; Pereira, L.; Campadelli-Fiume, G.
CS Dip. Patol. Sper., Univ. Bologna, Bologna, 40126, Italy
SO Journal of General Virology (1988), 69(4), 869-77
CODEN: JGVIAY; ISSN: 0022-1317
DT Journal
LA English
OSC.G 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L5 ANSWER 26 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Analysis of the chain length of oligomers and polymers of sialic acid isolated from Neisseria meningitidis group B and C and Escherichia coli K1 and K92
AB A series of (2→8)-α-, (2→9)-α-, and alternate (2→8)-α- and (2→9)-α- linked oligomers of sialic acid was prepared by digestion with bacteriophage or by partial hydrolysis at pH 7.0 and 100° of polymers of sialic acid produced by N. meningitidis and E. coli. The oligosaccharides were purified by gel filtration or by anion-exchange chromatog., and their chain lengths were determined by colorimetric measurement of the HCHO released from the nonreducing end residue after IO4- oxidation, radiolabelling of the reducing end residue by reduction with NaB3H4, and determination of the ratio of the nonreducing end and internal residues by gas chromatog. of the trimethylsilyl derivs. of the Me ester Me β-ketosides. 1H-NMR spectroscopy was used to confirm the chain length of 2 oligosaccharides. These methods were used to determine the average chain-length of the sialic acid polysaccharides produced by N. meningitidis and E. coli and the percentage of chains with covalently bound lipid moieties at the reducing end. The average chain length of these polysaccharides was 200-300 sialic acid residues.
AN 1987:15496 HCAPLUS <<LOGINID::20090828>>
DN 106:15496
OREF 106:2625a,2628a
TI Analysis of the chain length of oligomers and polymers of sialic acid isolated from Neisseria meningitidis group B and C and Escherichia coli K1 and K92
AU Lifely, M. Robert; Nowicka, Urszula T.; Moreno, Carlos
CS Wellcome Res. Lab., Dep. Exp. Immunobiol., Kent, BR3 3BS, UK
SO Carbohydrate Research (1986), 156, 123-35
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
OSC.G 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)

L5 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydrazinolysis-N-reacetylation of glycopeptides and glycoproteins. II. Purification of oligosaccharides having a free reducing end from glycopeptide sources

AB A hydrazinolysis-N-reacetylation procedure, modified by the inclusion of a mild acid hydrolysis step after N-acetylation, was used to prepare, in overall yields of 60-70%, pure oligosaccharides containing a reducing D-GlcNAc residue from glycopeptide sources. Three types of asparagine-linked glycopeptides were treated: a high-mannose type, a complex-type containing sialic acid, and a complex-type containing sialic acid, linked both α-(2→3) and α-(2→6) to β-D-Galp residues. After the hydrazinolysis-N-reacetylation procedure, there was often contamination of the reducing oligosaccharides with glycopeptide that remained intact through the procedure, as well as minor oligosaccharide products, altered in the nature of the residue at the reducing end. Oligosaccharides having a reducing D-GlcNAc residue were purified by standard liquid chromatog. and HPLC. NMR (360-MHz) was valuable in establishing common structural reporter signals which enabled major products to be identified at stages during the production of free reducing oligosaccharides, and their purity to be assessed.
AN 1986:609380 HCAPLUS <<LOGINID::20090828>>
DN 105:209380
OREF 105:33779a,33782a
TI Hydrazinolysis-N-reacetylation of glycopeptides and glycoproteins. II. Purification of oligosaccharides having a free reducing end from glycopeptide sources
AU Bendiak, Brad; Cumming, Dale A.
CS Res. Inst., Hosp. Sick Child., Toronto, ON, M5G 1X8, Can.
SO Carbohydrate Research (1986), 151, 89-103
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
OSC.G 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

L5 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Cleavage of the polysialosyl units of brain glycoproteins by a bacteriophage endosialidase. Involvement of a long oligosaccharide segment in molecular interactions of polysialic acid
AB Polysialosyl chains containing α2-8- linked N-acetylneuraminic acid have been suggested to modulate the biol. activity of a neural cell adhesion mol. Polysialosyl glycopeptides isolated from developing brain were incubated with a bacteriophage containing endosialidase. Sialic acid oligomers of ≤7 residues long were liberated both from the glycopeptides and colominic acid. The substrate specificity of the endosialidase was studied with sialic acid oligomers of different sizes prepared from colominic acid. The endosialidase required the simultaneous presence adjacent to the site of cleavage of a min. of 3 sialic acid residues on the distal side and a min. of 5 sialic acid residues on the proximal (reducing end) side. From the fragments liberated by the enzyme, the existence of polysialic acid chains ≥12 residues long in the glycopeptides was concluded. This was also supported by the interaction of the glycopeptides with a meningococcal group B polysaccharide antiserum, which require ≥10 residues for binding. Thus, brain polysialosyl glycopeptides contain a long polysialic acid segment, which is also specifically needed for certain mol. interactions. The implications of the findings for the biol. properties of the neural cell adhesion mol. are discussed.
AN 1985:127776 HCAPLUS <<LOGINID::20090828>>
DN 102:127776
OREF 102:19989a,19992a
TI Cleavage of the polysialosyl units of brain glycoproteins by a bacteriophage endosialidase. Involvement of a long oligosaccharide segment in molecular interactions of polysialic acid

AU Finne, Jukka; Makela, P. Helena
CS Dep. Biochem., Univ. Basel, Basel, CH-4056, Switz.
SO Journal of Biological Chemistry (1985), 260(2), 1265-70
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
OSC.G 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS RECORD (46 CITINGS)

L5 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Determination of the bonding-site of sialic acid residues by periodate oxidation
AB cf. CA 57, 2300e. Sialic acid-containing oligosaccharides from mother's milk and cow colostrum were studied by a series of reactions involving periodate oxidation, NaBH4 reduction, and mild acid hydrolysis; thus was shown that the sialic acid residue was ketosidically linked to either the 3- or 6-position of the D-galactose residue or to the 6-position of 2-acetamido-2-deoxy-D-glucose residue or to the 8-position of the sialic acid residue. Chromatographic solvents were: 5:5:3:1 EtOAc-pyridine-H2O-AcOH (A); 7: 2: 2 EtOAc-AcOH-H2O (B); 6: 4: 3 BuOH-pyridine-H2O (C); or by the ascending method with solvent A. Mobilities were relative to solvent front (Rf), or to Na sialate (R8, or to Sial-(2 → 3)-Gal-(1 → 4)-G (I)(CA 54,312h) (Rt). Oligosaccharide (0.02 millimole) was neutralized with 0.2N Na2CO3 and oxidized 24-28 hrs. at 4° in the dark in a buffered solution of pH 4.4 containing 0.2M OAc- and 0.1M NaIO4; IO4- was 2.5 times the theoretical consumption. Excess NaIO4 was destroyed [(CH2OH)2 or (CH3CO)2], and the solution was reduced with NaBH4. Oligosaccharide degradation from the reducing end was carried out by the following overoxidation: After the usual periodate oxidation and destruction of excess NaIO4, the solution was adjusted to pH 7.5-8.0 with Na2CO3, kept 45-60 min. at room temperature to saponify the formyl ester at the reducing end, and readjusted to pH 4.4 with AcOH. After addition of excess NaIO4 and 24 hrs. overoxidation at 4°, excess NaIO4 was destroyed. The product of periodate oxidation and NaBH4 reduction was hydrolyzed: Hydrolysis of the glycolaldehyde acetal residue, with partial liberation of the oxidized sialic acid residue (C7 Sial) was carried out at room temperature, pH 1.5, for 6-12 hrs., or at 37° for 1-2 hrs. A solution of 0.2M acidic compound underwent autohydrolysis, but a dilute solution had to be acidified to pH 1.5 with 0.2N H2SO4. For the neutral compound, 0.05N H2SO4 was used for room temperature hydrolysis. Hydrolysis at 85°, pH 1.5, for 75-90 min. caused liberation of C7 Sial and hydrolysis of the glycolaldehyde acetal residue, but the glycosidic linkages remained intact. Total hydrolysis was carried out 6-12 hrs. at 100° with 0.5-1.0N H2SO4; this destroyed C7 Sial. I (1.34 g.) was oxidized 28 hrs. at 4° with a precooled mixture of 10 cc. 0.2N Na2CO3, 85 cc. 0.5N OAc- buffer, pH 4.4, and 85 cc. 0.25M NaIO4. Excess NaIO4 was destroyed and the solution was passed through IR-120 (H+) resin on top of IR-45 (OH-) resin, and eluted with 250 cc. H2O. The eluate was adjusted to pH 6 with Na2CO3, evaporated to 5 cc. and reduced (NaBH4) to give 592 mg. (54%) C7 Sial-(2 → 3)Gal-(1 → 2)-erythritol (II), R8 0.42 (B). II in 3 cc. H2O (pH of the solution 1.5) was heated 75 min. at 85° in a sealed tube. The diluted solution was passed through Dowex 1 + 4 (HCO3-), and eluted with 700 cc. H2O. The 3rd and 4th 50-cc. fractions gave 305 mg. 2-O-β-D-galactosyl-D-erythritol (III), m. 188-90° (90% EtOH), R&8 0.60 (B), Rf 0.31 (A). The column was next eluted with 1250 cc. O.O2M NH4HCO3, the eluate was passed through IR-120 (H+), neutralized with Na2CO3, and freeze-dried to give C7 Sial Na salt, (IV) 175 mg., Rf 0.28 (A), Rs 1.32 (Na salt, B), 1.60 (free acid, B). IV (40 mg.) in 1.2 cc.

absolute MeOH heated 45 min. under reflux with 23 mg. o-phenylenediamine and kept 24 hrs. at 4° gave 28 mg. (54%) quinoxaline derivative, m. 204-6° (H2O), [α]20D - 112° (c 0.11, DMSO-H2O 1:1); the quinoxaline derivative of sialic acid m. 229°, [α]20D -102° (c 0.27, DMSO-H2O 1:1). Sialic acid Me ester Me glycoside (V) (235 mg.) in 4 cc. H2O containing 0.75 cc. N Na2CO3 was treated further with 1.5 cc. N Na2CO3 during 8 hrs. The solution was adjusted to pH 5 with 1.2 cc. 2N AcOH and kept 15 hrs. at 0° with 10 cc. 0.25M NaIO4, and reduced (NaBH4) to give 176 mg. (96%) Me glycoside (VI), of IV Rf 0.29 (A), R> 1.61 (Na salt, B), 3.00 (free acid, B), decomposed at 150° without melting (MeOH-Et2O-petr. ether), [α]20D -62.3deg; (c 0.5, MeOH). VI (75 mg.) in 25 cc. absolute MeOH stirred 5.5 hrs. with 250 mg. MeOH-washed Dowex 50 (H+) gave 42 mg. Me ester (VII) of VI, m. 107-9° (MeOH-Et2O), Rf 0.81 (A), Rs 3.92 (B). VII (5 mg.) in 0.3 cc. MeOH reduced (NaBH4) gave "N-acetylheptulosaminol" Me glycoside, Rf 0.65 (A), R3 2.66 (B), hydrolysis of which with 0.1N H2SO4 for 1 hr. at 85° gave "N-acetylheptulosaminol" Rf 0.54 (A), Rs 1.80 (B). Similar reaction of V gave "N-acetylnonulosaminol" Me glycoside, Rf 0.53 (A), R3 1.66 (B), hydrolysis of which gave "N-acetylnonulosaminol," Rf 0.45 (A), R3 1.16 (B). Sial-(2 → 3)-Gal (2.35 mg.) on NaBH4 reduction gave compound with Rs 0.83 (B) and Rf 0.163 (A), autohydrolysis of which in 0.025 cc. H2O for 1 hr. at 85° gave IV and lyxitol. 3'-(N-Glycolylneuraminyl)lactose (3.3 mg.) from cow colostrum on NaBH4 reduction gave compound with R3 0.36 (B), partial hydrolysis of which gave III and compound with Rs 1.07 (B). Gal-(1 → 3)-GNAc-(1 → 3)-Gal-(1 → 4)-G (VIII) (CA 50, 14564a) (70 mg.) was periodate-oxidized, and NaBH4reduced to give compds. with Rf 0.32 and 0.40 (A); hydrolysis with 0.5 cc. 0.05N H2SO4 for 75 min. at 85° gave glycerol (IX), Rf 0.61 (A), 26 mg. (54%) of GNAc-(1 → 3)-Gal-(1 → 2)-erythritol (X), Rf 0.255 (A), m. 259-61° (85% EtOH), and 4.5 mg. (13°o) GNAc-(1 → 2)-arabinitol (XI), Rf 0.352 (A). Overoxidation of 35 mg. VIII gave 9 mg. (51%) of XI. Sial-(2 → 3)-Gal(1 → 3)-GNAc-(1 → 3)-Gal-(1 → 4)-G (XII) (CA 57, 2300e) (10 mg.) gave C7 Sial-(2 → 3)-Gal-(1 → 3)-GNAc-(1 → 3)-Gal-(1 → 2)-erythritol (XIII), Rt 0.69 (A), XIII heated 75 min. at 85° at pH 1.5 gave IV and Gal-(1 → 3)-GNAc-(1 → 3)-Gal-(1 → 2)erythritol (XIV), Rf 0.12 (A), Rt 1.23 (A); the XIII-containing mixture also gave small amts. of C7 Sial-(2 → 3)-Gal-(1 → 3)-GNAc-(1 → 2)-arabinitol (XV), Rt 0.92 (A). XV heated at 85° at pH 1.5 gave IV and Gal-(1 → 3)-GNAc-(1 → 2)-arabinitol (XVI), Rt 1.66 (A). XII (20 mg.) was degraded to 3 mg. XIV and 1 mg. VXI isolated by paper chromatography in solvent A. XIV (1.3 mg.) in 0.2 cc. 0.5N H2SO4 was heated 15 min. at 100°, SO4- was removed by MIH (OAc-), ascending paper chromatography in A showed compds. with the following Rf: erythritol (XVII), 0.50; GNAc, 0.51; galactose, 0.34; III, 0.31; Gal-(1 → 3)-GNAc (XVIII), 0.34; GNAc-(1 → 3)-Gal (XIX), 0.26; and Gal-(1 → 3)GNAc-(1 → 3)-Gal (XX). XVI in N H2SO4 heated 12 hrs. at 100° gave lyxitol (XXI), Rf 0.44 (A); GN, 0.25; Gal, 0.34; and GN(1 → 2)-arabinitol. XII (5 mg.) was overoxidized and reduced to give XV. Sial-(2 → 6)-Gal-(1 → 4)-G (XXII), Rt 0.76 (A), was obtained in 200-400 mg. yield from 1 l. mother's milk. XXII (300 mg.) in 6 cc. 0.01N H2SO4 was kept 64 hrs. at 40° the solution was desalted with Ba(OAc)2, IR-120 (H+) (12. + 20 cm.), and MIH (OAc-) (1.8 + 20 cm.) to give 144 mg. (85%) lactose, [α]23D 54.6° (c 1, H2O). The MIH-column was eluted with 0.05M NaOAc to give 139 mg. (95%) sialic acid (XXIII). XXIII (120 mg.) gave 149 mg. di-Et dithioacetal lactone, recrystd. from H2O, 37 mg., [α]25D -84° (c 1, MeOH). XXII (830 mg.) in 3 cc. H2O and 200 cc. MeOH was treated at 0° with CH2N2-Et2O. The

residue from evaporation was methylated (CA 50, 16812i). Methanolysis, removal of sialyl derivative, and acid hydrolysis gave a mixture of methylated hexoses, which was chromatographed on 110 g. Celite column with H2O-saturated BuOH to give 120 mg. 2,3,6-tri-O-methylD-glucose and 120 mg. 2,3,4-tri-O-methyl-D-galactose, the latter was distilled under high vacuum, and recrystd. from EtOAc-cyclohexane, [α]22D 135° (5 min.) → 108.5° (12 min.) (c 0.46, H2O). XXII (19.5 mg.) on overoxidn. and reduction gave a compound (XXIV), Rs 0.76 (B). XXIV in 0.1 cc. H2O kept at 27° gave XVII and C7 Sial-(2 → 1)-Glycerol (XXV), Rs 1.15 (B). XXV in 0.05N H2SO4 heated 75 min. at 85° gave IV and IX. Sial-(2 → 6)-Gal-(1 → 4)-GNAc (XXVI) (6.7 mg.) gave on reduction a compound (XXVII) of R3 0.79 (B). XXVII in 0.067 cc. H2O was kept 5 hrs. at 37° to give XXV and 2-acetamido-2-deoxy-D-glucitol (XXVIII), Rf 0.45 (A), Rs 1.27 (B). XXVIII hydrolyzed 12 hrs. at 100° in 0.5NH2SO4 gave 2-amino-2-deoxy-D-glucitol, Rf 0.23 (A). Sial-(2 → 6)Gal-(1 → 4)-GNAc-(1 → 3)-Gal-(1 → 4)-G (XXIX) (10 mg.) from mother's milk by reduction gave compound (XXX) of Rt 1.06 (A), Rs 0.27 (B). XXX in 0.05 cc. H2O kept 9 hrs. at 37° gave XXV, X, Rs 0.32 (B), and XI, Rs 0.69 (5); XXX heated 75 min. at 85° gave IV, IX, and X. Gal-(1 → 3)-[Sial-(2 → 6)-GNAc]-(1 → 3)-Gal-(1 → 4)-G (XXXI) (50 mg.) from mother's milk by reduction gave a compound (XXXII) of Rt 1.11 (A) and some overoxidized product (XXXIII) of Rt 1.43 (A). Autohydrolysis of XXXII for 2 hrs. at pH 1.5 at 37° gave IX, 3.6 mg. XXXII, and 4.0 mg. of C7 Sial-(2 → 6)-GNAc-(1 → 3)-Gal-(1 → 2)-erythritol (XXXIV), Rt 0.84 (A). XXXII (0.5 mg.) in 0.025 cc. H2O heated 80 min. at 85° gave IV, IX, and X; XXXIV (0.5 mg.) gave IV and X. XXXIV (3 mg.) by reduction gave a compound (XXXV) of Rt 1.76 (A), Rs 0.65 (B). Mild hydrolysis of XXXV at 37° at pH 1.5 gave no XXV. Total hydrolysis of XXXV in N H2SO4 at 100° for 12 hrs. gave D-galactose and IX, but no 2-amino-2-deoxy-D-glucose. Overoxidation of 20 mg. XXXI followed by reduction gave XXXIII. XXXIII by total hydrolysis gave 2-amino-2-deoxy-D-glucose, XXI, and IX; mild hydrolysis of XXXIII gave IV, IX, and XI. Oxidation and reduction of XXXIII (8 mg.) gave compound (XXXVI), Rt 1.73 (A). XXXVI gave on total hydrolysis IX and 2-amino-2-deoxy-D-glucose. Similarly, Sial-(2 → 8)-Sial-(2 → 3)-Gal-(1 → 4)-G (XXXVII) (4.6 mg.), Rt 0.47 (A) from cow colostrum gave compound (XXXVIII), Rf 0.69 (A). Mild acid hydrolysis of XXXVIII at 80° gave IV, III, and XXIII. Lactone of XXXVII obtained by freeze-drying of acidic aqueous solution was degraded as usual to give "N-acetylheptulosaminol" identical with that from degradation of VII. XII (5 mg.) or XXXI (5 mg.) was neutralized with 0.1N Na2CO3, diluted with H2O to 0.5 cc., and heated 10 min. at 100° with 0.5 cc. 0.1N Na2CO3. After cooling, treatment with IR-120 (H+), and freeze-drying, the residue was taken up in 0.1 cc. H2O. GNAc (1 mg.) in 1 cc. 0.05N Na2CO3 was treated the same way. XXII by the above alkalitreatment showed "chromogen I," stained violet with p-DAB, Rf 0.58 (C), 0.68 (A), traces of "chromogen III," Rf 0.74 (C), 0.83 (A), and Sial-(2 → 3)-Gal, Rt 1.39 (A). XXXI by the alkali treatment gave sialylchromogen I, Rf 0.09 (C), 0.30 (A), and sialylchromogen III, Rf 0.22 (C), 0.41 (A). The solution neutralized to pH 6.5 and treated 28 hrs. at 37° with neuraminidase showed chromogen I and XXIII.

AN 1965:480931 HCAPLUS <<LOGINID::20090828>>
DN 63:80931
OREF 63:14954g-h,14955a-h,14956a-e
TI Determination of the bonding-site of sialic acid residues by periodate oxidation
AU Kuhn, Richard; Gauhe, Adeline
CS Max-Planck-Inst., Heidelberg, Germany
SO Chemische Berichte (1965), 98(2), 395-413

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     CODEN: CHBEAM; ISSN: 0009-2940
DT   Journal
LA   German
OSC.G   21    THERE ARE 21 CAPLUS RECORDS THAT CITE THIS RECORD (21 CITINGS)


=> d his


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     FILE 'HCAPLUS' ENTERED AT 13:53:46 ON 28 AUG 2009
L1         23672 S SIALIC OR POLYSIALIC OR COLOMINIC
L2       1312574 S ALDEHYDE OR PERIODATE OR OXIDIZED OR OXIDATION OR FUNCTIONALI
L3          2302 S REDUCING END
L4            33 S L1 AND L2 AND L3
L5            29 S L4 AND (PY<2004 OR AY<2004 OR PRY<2004)

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FULL ESTIMATED COST                                    95.55      95.77

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                   -23.78     -23.78

=> s oxidized or oxidation or periodate
        275926 OXIDIZED
        512534 OXIDATION
         16417 PERIODATE
L6      724420 OXIDIZED OR OXIDATION OR PERIODATE

=> s l1 and l6
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L7          661 L1 AND L6

=> s l7 and (PY<2004 or AY<2004 or PRY<2004)
      24036151 PY<2004
       4803740 AY<2004
       4276681 PRY<2004
L8          588 L7 AND (PY<2004 OR AY<2004 OR PRY<2004)

=> s aldehyde
L9       126107 ALDEHYDE

=> s l8 and l9
L10          46 L8 AND L9

=> s l10 not l5
L11          45 L10 NOT L5

=> d l11 1-45 ti

L11  ANSWER 1 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Methods for cell-free remodeling and glycoconjugation of glycopeptides,
     remodeling of α-galactosidase A peptides, and their therapeutic use
     for Fabry disease

L11  ANSWER 2 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Signature genes expressed the lung during asthma or allergies and their
     use in predicting, diagnosing and treating asthma or allergies

L11  ANSWER 3 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Polysialylated insulin: synthesis, characterization and biological
     activity in vivo

L11  ANSWER 4 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Surface engineering of living myoblasts via selective periodate
     oxidation

L11  ANSWER 5 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Derivatization of proteins for prolonged circulation and enhanced storage
     stability

L11  ANSWER 6 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Microscale Synthesis of Dextran-Based Multivalent N-Linked Oligosaccharide
     Probes

L11  ANSWER 7 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Designer vaccines to prevent infections due to group B Streptococcus

L11  ANSWER 8 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   A Schiff base with mildly oxidized carbohydrate ligands
     stabilizes L-selectin and not P-selectin or E-selectin rolling adhesions
     in shear flow

L11  ANSWER 9 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Preparation of novel sphingoglycolipid and use thereof

L11  ANSWER 10 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Transfer of modified sialic acids by Trypanosoma cruzi
     trans-sialidase for attachment of functional groups to oligosaccharide

L11  ANSWER 11 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Group B Streptococcus type II polysaccharide-tetanus toxoid conjugate
```

vaccine

L11 ANSWER 12 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Conjugates of a glycoprotein with a nucleic acid-binding substance to induce cell transfection in gene therapy

L11 ANSWER 13 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI A carbohydrate-directed heterobifunctional cross-linking reagent for the synthesis of immunoconjugates

L11 ANSWER 14 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Immunogenicity in animals of a polysaccharide-protein conjugate vaccine against type III group B Streptococcus

L11 ANSWER 15 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Enzymic oxidation of monoclonal antibodies by soluble and immobilized bifunctional enzyme complexes

L11 ANSWER 16 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Description and application of an immunological detection system for analyzing glycoproteins on blots

L11 ANSWER 17 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Modification of sialyl residues of glycoconjugates by reductive amination. Characterization of the modified sialic acids

L11 ANSWER 18 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Modification and introduction of various radioactive labels into the sialic acid moiety of sialoglycoconjugates

L11 ANSWER 19 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI N-acetylated and N-propionylated meningococcal group B polysaccharide for conjugate vaccine

L11 ANSWER 20 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Biocytin hydrazide - a selective label for sialic acids, galactose, and other sugars in glycoconjugates using avidin-biotin technology

L11 ANSWER 21 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent gangliosides

L11 ANSWER 22 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Behavior of aldehyde moieties involved in the activation of suppressor cells by sodium periodate

L11 ANSWER 23 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI A high-capacity affinity gel for the purification of the testicular lutropin receptor

L11 ANSWER 24 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Reversal of murine alveolar macrophage-mediated suppression of plaque-forming cell response by sodium periodate

L11 ANSWER 25 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent derivatives of ganglioside GM1 function as receptors for cholera toxin

L11 ANSWER 26 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Complement activation by polymer binding IgG

L11 ANSWER 27 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Use of ferritin hydrazide for the detection of sialoglycoconjugates. I. Methodological aspects

L11 ANSWER 28 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI In vitro labeling of the sialic acid moiety of glycoconjugates with carbon-14

L11 ANSWER 29 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Studies on the induction and expression of T cell-mediated immunity. XIV. Antigen-nonspecific oxidation-dependent cellular cytotoxicity (ODCC) mediated by sodium periodate oxidation of cytotoxic T lymphocytes

L11 ANSWER 30 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Translocation of newly synthesized gangliosides to the cell surface

L11 ANSWER 31 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent labeling of the carbohydrate moieties of human chorionic gonadotropin and α1-acid glycoprotein

L11 ANSWER 32 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Ferritin hydrazide, a novel covalent electron dense reagent for the ultrastructural localization of glycoconjugates

L11 ANSWER 33 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Specific labeling of platelet membrane glycoproteins

L11 ANSWER 34 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Identification of carbohydrates and functional groups involved in the adhesion of neoplastic cells

L11 ANSWER 35 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Notes on improved procedures for the chemical modification and degradation of glycosphingolipids

L11 ANSWER 36 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI NMR spectroscopy and calcium binding of sialic acids: N-glycolylneuraminic acid and periodate-oxidized N-acetylneuraminic acid

L11 ANSWER 37 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effects of mitogenic periodate concentrations on human lymphocyte membrane glycoconjugates

L11 ANSWER 38 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hepatic uptake of desialylated testosterone-estradiol-binding globulin in the rat

L11 ANSWER 39 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The role of sialic acid and galactose residues in determining the survival of human plasma α1-antitrypsin in the blood circulation

L11 ANSWER 40 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effects of sodium periodate modification of lymphocytes on the sensitization and lytic phases of T cell-mediated lympholysis

L11 ANSWER 41 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The periodate/borohydride/potassium hydroxide/periodic acid-Schiff technique (with special reference to the differentiation of primary adenocarcinoma of the lung from metastases arising from

adenocarcinoma of the colon)

L11 ANSWER 42 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Role of galactose in bovine Factor V

L11 ANSWER 43 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Membrane site modified on induction of the transformation of lymphocytes by periodate

L11 ANSWER 44 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Use of galactose oxidase in the histochemical examination of mucus-secreting cells

L11 ANSWER 45 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Specificity of periodic acid-Schiff reagent applied to the detection of glycoproteins

=> file stnguide

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	118.35	118.57
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CA SUBSCRIBER PRICE	-23.78	-23.78

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=> d l11 1-45 ti abs bib
YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

L11 ANSWER 1 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Methods for cell-free remodeling and glycoconjugation of glycopeptides, remodeling of α-galactosidase A peptides, and their therapeutic use for Fabry disease
AB The invention includes methods and compns. for remodeling a peptide mol., including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide. The invention claims a method of remodeling an α-galactosidase A peptide in vitro by removing a saccharyl subunit from the peptide and contacting the truncated glycan with at least one glycosyltransferase and a glycosyl donor to transfer the glycosyl donor to the glycan moiety. The glycosyl donor may contain a modifying group such as a polymer, a therapeutic toxin, a detectable label, a reactive linker group, or a targeting mol. The invention specifically claims α-galactosidase glycopeptides containing mannooligosaccharide or sialyloligosaccharide structures and their modification with a galactosyltransferase, a sialyltransferase, or a mannosyltransferase and modified glycosyl donors such as UDP-Gal-polyethylene glycol (PEG)-transferrin , CMP-sialic acid linker-mannose-6-phosphate, CMP-sialic acid-PEG, or GDP-mannose-linker-ApoE. Conjugation of glycopeptides with PEG, for

example, is intended to reduce the immunogenicity of peptides and prolong their half-life in circulation. Conjugation of glycopeptides with transferrin is intended to transport glycoconjugates across the blood-brain barrier. In addition, the invention claims therapeutic use of a glycoconjugated α-galactosidase A peptide for Fabry disease. Examples of the invention include synthesis of CMP-sialic acid, UDP-galactose, UDP-glucosamine, and UDP-galactosamine conjugates with polyethylene glycol, sialylation of recombinant glycoproteins antithrombin III, fetuin, and α1-antitrypsin by recombinant rat ST3Gal III, and glyco-remodeling of Cri-IgG1 monoclonal antibody. The general procedure for making UDP-GlcNAc-PEG is that the protected amino sugar diphospho-nucleotide is oxidized to form an aldehyde at the 6-position of the sugar. The aldehyde is converted to the corresponding primary amine by formation and reduction of the Schiff base. The resulting intermediate is contacted with the p-nitrophenol carbonate of m-PEG, which reacts with the amine, binding the m-PEG to the saccharide via an amide bond.

AN 2004:182383 HCAPLUS <<LOGINID::20090828>>

DN 140:231203

TI Methods for cell-free remodeling and glycoconjugation of glycopeptides, remodeling of α-galactosidase A peptides, and their therapeutic use for Fabry disease

IN Defrees, Shawn; Zopf, David; Bayer, Robert; Bowe, Caryn; Hakes, David; Chen, Xi

PA Neose Technologies, Inc., USA

SO U.S. Pat. Appl. Publ., 761 pp., Cont.-in-part of Appl. No. PCT/US02/32263.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 18

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20040043446	A1	20040304	US 2003-411037	20030409 <--
	US 7125843	B2	20061024		
	WO 2003031464	A2	20030417	WO 2002-US32263	20021009 <--
	WO 2003031464	A3	20060302		
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	EP 2042196	A2	20090401	EP 2009-818	20021009 <--
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	ZA 2004002673	A	20070328	ZA 2004-2673	20040405 <--
	AU 2004236174	A1	20041118	AU 2004-236174	20040409 <--
	CA 2522345	A1	20041118	CA 2004-2522345	20040409 <--
	WO 2004099231	A2	20041118	WO 2004-US11494	20040409 <--
	WO 2004099231	A3	20060316		
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             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
             TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
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             SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
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     EP 1615945          A2   20060118    EP 2004-750118          20040409 <--
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            IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR
     BR 2004009277       A    20060321    BR 2004-9277            20040409 <--
     CN 1863458          A    20061115    CN 2004-80015918        20040409 <--
     JP 2007525941       T    20070913    JP 2006-510027          20040409 <--
     EP 2055189          A1   20090506    EP 2009-151370          20040409 <--
        R:  AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
            IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR
     US 20070026485      A1   20070201    US 2006-552896          20060608 <--
     JP 2009108087       A    20090521    JP 2008-297209          20081120 <--
PRAI US 2001-328523P     P    20011010  <--
     US 2001-344692P     P    20011019  <--
     US 2001-334233P     P    20011128  <--
     US 2001-334301P     P    20011128  <--
     US 2002-387292P     P    20020607  <--
     US 2002-391777P     P    20020625  <--
     US 2002-396594P     P    20020717  <--
     US 2002-404249P     P    20020816  <--
     US 2002-407527P     P    20020828  <--
     WO 2002-US32263     A2   20021009  <--
     US 2003-438582P     P    20030106  <--
     US 2003-448381P     P    20030219  <--
     EP 2002-795509      A3   20021009  <--
     JP 2003-534446      A3   20021009  <--
     US 2003-410897      A    20030409  <--
     US 2003-410913      A    20030409  <--
     US 2003-410930      A    20030409  <--
     US 2003-410945      A    20030409  <--
     US 2003-410962      A    20030409  <--
     US 2003-410980      A    20030409  <--
     US 2003-410997      A    20030409  <--
     US 2003-411012      A    20030409  <--
     US 2003-411026      A    20030409  <--
     US 2003-411037      A    20030409  <--
     US 2003-411043      A    20030409  <--
     US 2003-411044      A    20030409  <--
     US 2003-411049      A    20030409  <--
     EP 2004-750118      A3   20040409
     WO 2004-US11494     A    20040409
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
RE.CNT  188   THERE ARE 188 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11  ANSWER 2 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Signature genes expressed the lung during asthma or allergies and their
     use in predicting, diagnosing and treating asthma or allergies
AB   Several genes are upregulated in the lung of asthma or allergy sufferers.
     Many of the genes up-regulated in asthma are involved in arginine metabolism
     in the lung.  Moreover, a set of 291 signature genes was found that can be
     used to indicate a patient's predilection for developing asthma or the
     patient's degree of suffering.  Also, a set of 59 signature genes were
     found that indicate a patient's predilection for developing allergies.
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Many of the up-regulated genes relating to asthma were from the arginine metabolic pathway. Other genes, such as ADAM8, SPRR2A and SPRR2B were also strongly up-regulated in asthma. Treatment of asthma may be accomplished by administering compns. which decrease the levels of Arginase I, Arginase II, cationic amino acid transporter CAT2, or other arginase pathway members in the lung. Addnl., detection of altered levels of these proteins or the mRNA encoding them may be useful to diagnose the presence of asthma in a patient.

AN 2003:696523 HCAPLUS <<LOGINID::20090828>>

DN 139:229271

TI Signature genes expressed the lung during asthma or allergies and their use in predicting, diagnosing and treating asthma or allergies

IN Rothenberg, Marc Elliot; Zimmermann, Nives

PA USA

SO U.S. Pat. Appl. Publ., 36 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 20030166562	A1	20030904	US 2003-377998	20030228	<--
	CA 2477400	A1	20030912	CA 2003-2477400	20030228	<--
	WO 2003073990	A2	20030912	WO 2003-US6183	20030228	<--
	WO 2003073990	A3	20050310			
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	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	AU 2003213633	A1	20030916	AU 2003-213633	20030228	<--
	EP 1527196	A2	20050504	EP 2003-711317	20030228	<--
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	CN 1692161	A	20051102	CN 2003-808582	20030228	<--
	JP 2005532997	T	20051104	JP 2003-572512	20030228	<--
	MX 2004008286	A	20050727	MX 2004-8286	20040826	<--
	US 20070190567	A1	20070816	US 2007-735954	20070416	<--
PRAI	US 2002-361606P	P	20020301	<--		
	US 2003-377998	B3	20030228	<--		
	WO 2003-US6183	W	20030228	<--		

L11 ANSWER 3 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Polysialylated insulin: synthesis, characterization and biological activity in vivo

AB Polysialic acids (PSA) (colominic acid; CA) of 22 and 39 kDa average mol. weight were oxidized with sodium periodate at carbon 7 of the nonreducing end to form an aldehyde group. The oxidized CAs (96–99% oxidation) were then reacted with the amino groups of recombinant human insulin at various CA/insulin molar ratios (25:1 to 150:1 range) for up to 48 h in the presence of sodium cyanoborohydride (reductive amination). Polysialylated insulin conjugates were precipitated (together with intact nonreacted insulin, if any) at time intervals from the reaction mixts. with ammonium sulfate, further purified by size exclusion chromatog. and/or ion exchange chromatog. (IEC), and the final conjugates assayed for PSA and protein. Results showed an initial

rapid conjugation rate peaking at about 12 h, to form a plateau over a period of 12-48 h. Moreover, the extent of polysialylation (CA/insulin molar ratios in the conjugate) was dependent on the PSA used, the initial CA/insulin molar ratios in the reaction mixture and the time of the coupling reaction. Thus at 48 h of incubation, CA/insulin molar ratios in the conjugates were 1.60-1.74 for the 22-kDa CA and 2.37-2.45 for the 39-kDa CA. SDS-PAGE of intact insulin and insulin reacted with non-oxidized CA for 48 h revealed well-resolved single bands which migrated similar distances in the gel. On the other hand, polysialylated (22-kDa CA) insulin yielded multiple diffused bands suggesting heterogenicity as a result of differential polysialylation. The pharmacol. activity of polysialylated insulin was compared with that of intact insulin in normal female outbred T/O mice. After s.c. injection of intact insulin (0.3 units per mouse), blood glucose levels were reduced to nadir values at 1 h to return to normal at 3 h. In contrast, blood glucose levels in animals injected with polysialylated insulin (0.3 units or protein equivalence for polysialylated insulin), having attained nadir values also at 1 h, returned to normal levels after 6 h (39 kDa) and 9 h (22 kDa CA-insulin). It is concluded that polysialylation offers a promising strategy for the enhancement of the therapeutic value of insulin and other pharmacol. active peptides.

AN 2003:485968 HCAPLUS <<LOGINID::20090828>>

DN 139:191811

TI Polysialylated insulin: synthesis, characterization and biological activity in vivo

AU Jain, Sanjay; Hreczuk-Hirst, Dale H.; McCormack, Brenda; Mital, Malini; Epenetos, Agamemnon; Laing, Peter; Gregoriadis, Gregory

CS Lipoxen Technologies Limited, London, UK

SO Biochimica et Biophysica Acta, General Subjects (2003), 1622(1), 42-49
CODEN: BBGSB3; ISSN: 0304-4165

PB Elsevier B.V.

DT Journal

LA English

OSC.G 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 4 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Surface engineering of living myoblasts via selective periodate oxidation

AB Cell surface mols. are vital for normal cell activity. To study the functions of these mols. or manipulate cell behavior, the ability to decorate cell surfaces with bioactive mols. of our choosing is a potentially powerful technique. Here, we describe the mol. engineering of living L6 myoblast monolayers via selective periodate oxidation of sialic acid residues and the application of this surface modification in the artificial aggregation of cells. The aldehyde groups generated by this reaction were used to selectively ligate a model mol., biotin hydrazide, to the cell surfaces. Flow cytometry anal. after staining with fluorescently conjugated avidin revealed a concentration-dependent increase in fluorescence compared to untreated cells with a maximal shift of 345.1±27.4-fold and an EC50 of 17.4±1.1 μM. This mild oxidation reaction did not affect cell number, viability, or morphol. We then compared this chemical technique with the metabolic incorporation of reactive cell surface ketone groups using N-levulinoylmannosamine (ManLev). In this cell line, only a 22.3-fold fluorescence shift was observed compared to untreated cells when myoblasts were incubated with a high concentration of ManLev for 48 h. Periodate oxidation was then used to modify myoblast

surfaces to induce cell aggregation. Crosslinking biotinylated myoblasts, which do not spontaneously aggregate in culture, with avidin resulted in the rapid formation of millimeter-sized, multicellular structures. These data indicate that sodium periodate treatment is an effective, noncytotoxic method for the in vitro mol. engineering of living cell surfaces with the potential for cell biol. and tissue engineering applications.

AN 2003:195559 HCAPLUS <<LOGINID::20090828>>
DN 139:273166
TI Surface engineering of living myoblasts via selective periodate oxidation
AU De Bank, P. A.; Kellam, B.; Kendall, D. A.; Shakesheff, K. M.
CS School of Pharmaceutical Sciences, University of Nottingham, Nottingham, NG7 2RD, UK
SO Biotechnology and Bioengineering (2003), 81(7), 800-808
CODEN: BIBIAU; ISSN: 0006-3592
PB John Wiley & Sons, Inc.
DT Journal
LA English
OSC.G 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 5 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Derivatization of proteins for prolonged circulation and enhanced storage stability
AB Proteins are derivatized by reaction of pendant groups, usually groups which are side chains in non-terminal amino acyl units of the protein, in aqueous reactions in the presence of a denaturant. The denaturant is preferably an amphiphilic compound, most preferably an anionic amphiphilic compound such as a long chain alkyl sulfate mono ester, preferably an alkaline metal salt, for instance sodium dodecyl sulfate. The degree of derivatization is increased, while the protein retains activity, such as enzyme activity. The increase in the degree of derivatization enhances the increase in circulation time in vivo and stability on storage in vitro. Preferably the derivatizing reagent is an aldehyde compound which reacts with primary amine groups, generally the epsilon-amino group of lysyl units. Derivatization is conducted under reducing conditions to generate a secondary amine derivative For example, IgG was subjected to derivatization with polysialic acid (oxidized colominic acid) or monomethoxy poly(ethylene glycol) succinimidyl succinate in the absence and presence of 10-3M sodium dodecyl sulfate (SDS). The presence of SDS increased the level of derivatization for a PEG reagent as well as for a polysialic acid reagent. The PEG reagent gave a higher degree of substitution than the colominic acid reagent.
AN 2001:851191 HCAPLUS <<LOGINID::20090828>>
DN 135:376868
TI Derivatization of proteins for prolonged circulation and enhanced storage stability
IN Gregoriadis, Gregory
PA Lipoxen Technologies Limited, UK
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001087922	A2	20011122	WO 2001-GB2115	20010514 <--
	WO 2001087922	A3	20030530		

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             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,
             RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
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             KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR,
             IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
             GW, ML, MR, NE, SN, TD, TG
     EP 1335931          A2   20030820    EP 2001-931843          20010514 <--
     EP 1335931          B1   20051221
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             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
     JP 2003533537       T    20031111    JP 2001-585141          20010514 <--
     AT 313554           T    20060115    AT 2001-931843          20010514 <--
     ES 2256234          T3   20060716    ES 2001-931843          20010514 <--
     US 20030129159      A1   20030710    US 2002-276552          20021118 <--
     US 6962972          B2   20051108
PRAI EP 2000-304108      A    20000516  <--
     WO 2001-GB2115      W    20010514  <--
OSC.G   3     THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
RE.CNT  2     THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11  ANSWER 6 OF 45  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Microscale Synthesis of Dextran-Based Multivalent N-Linked Oligosaccharide
     Probes
AB   We developed a convenient method for the synthesis of dextran-based
     multivalent probes containing N-linked oligosaccharides which is efficient
     even in a small scale.  Oligosaccharides were derivatized with succinic
     dihydrazide and dimethylamine borane under a mild acidic condition.  The
     derivatized oligosaccharides were then conjugated in a good yield to
     periodate-oxidized dextran (500 kDa).  Thus, the
     conjugates containing 120 to 140 oligosaccharide chains per dextran mol. were
     successfully synthesized.  Their practical advantage was shown by the
     example that the asialofetuin oligosaccharide-dextran conjugate has much
     higher affinity to Ricinus communis agglutinin (RCA-I) than asialofetuin
     oligosaccharide itself or asialofetuin.  The conjugates were further
     labeled with fluorescent reagent or biotinylation reagent containing a
     hydrazino group by the use of the unreacted aldehyde groups of
     the oxidized dextran, yielding probes with similar densities of
     fluorophores or biotin groups.  Direct binding of the biotinylated
     asialofetuin oligosaccharide-dextran probe to RCA-I coated on the titer
     plate at a concentration of 50 ng/50 μl was easily detected using 50 fmol (as
     oligosaccharides) of the probe.  The method for the synthesis of
     dextran-based oligosaccharide probes will facilitate the investigation of
     carbohydrate-mediated mol. interactions based on the native
     oligosaccharide structures.  (c) 2000 Academic Press.
AN   1999:813716  HCAPLUS <<LOGINID::20090828>>
DN   132:248182
TI   Microscale Synthesis of Dextran-Based Multivalent N-Linked Oligosaccharide
     Probes
AU   Yoshitani, Naoei; Takasaki, Seiichi
CS   Department of Biochemistry, Institute of Medical Science, University of
     Tokyo, Minato-ku, Tokyo, 108-8639, Japan
SO   Analytical Biochemistry (2000), 277(1), 127-134
     CODEN: ANBCA2; ISSN: 0003-2697
PB   Academic Press
DT   Journal
LA   English
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OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

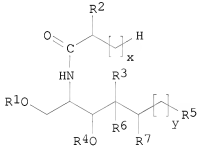
L11 ANSWER 7 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Designer vaccines to prevent infections due to group B Streptococcus
AB A review with 22 refs. Group B streptococci (GBS) are the major cause of serious infections in neonates and an important cause of infection in adults, particularly peripartum women and patients with diabetes mellitus and malignancy. Immunity to GBS in neonates is associated with naturally acquired maternal antibodies to the type-specific capsular polysaccharides of these organisms. IgG class antibodies directed to these polysaccharides are passed transplacentally and protect the child from invasive GBS disease. Phase I and II clin. trials showed that the purified polysaccharides had limited immunogenicity. However, vaccine responders passed functional IgG class antibodies to their children. A glycoconjugate vaccine has been designed so that the type-specific polysaccharides are covalently linked to a carrier protein. This secondary amine linkage is between aldehyde groups created on the eighth carbon of a selected number of periodate-oxidized sialic acid residues of the polysaccharide and epsilon-amino groups on lysine residues of tetanus toxoid. Careful epitope mapping studies had demonstrated that modification by controlled periodate oxidation could be accomplished and that an important conformational epitope on the polysaccharide would be preserved. Preclin. testing of the glycoconjugate vaccines in animal models of GBS disease demonstrated the immunogenicity and protective efficacy of the vaccine-induced antibodies. Phase I clin. testing of the glycoconjugate vaccine is in progress, and the early results appear promising.
AN 1996:308755 HCAPLUS <<LOGINID::20090828>>
DN 125:7650
OREF 125:1759a,1762a
TI Designer vaccines to prevent infections due to group B Streptococcus
AU Kasper, Dennis L.
CS Department Medicine, Brigham and Women's, Boston, MA, 02115, USA
SO Proceedings of the Association of American Physicians (1995), 107(3), 369-373
CODEN: PAAPFD; ISSN: 1081-650X
PB Blackwell
DT Journal; General Review
LA English
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L11 ANSWER 8 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI A Schiff base with mildly oxidized carbohydrate ligands stabilizes L-selectin and not P-selectin or E-selectin rolling adhesions in shear flow
AB Selectins are a family of lectins that mediate tethering and rolling of leukocytes on endothelium in vascular shear flow. Mild periodate oxidation of the L-selectin ligand CD34, or L-selectin ligands on leukocytes, enhanced resistance to detachment in shear and decreased rolling velocity equivalent to an 8-fold increase in ligand d., yet had little effect on rate of tethering. Enhanced interactions were also seen with mildly oxidized sialyl Lewisa and sialyl Lewisx glycolipids. Enhancement was completely reversed by borohydride reduction, yielding a strength of interaction equivalent to that with the native ligands. No effect on the strength of P-selectin and E-selectin interactions was seen after mild oxidation of their ligands. Completeness of modification of sialic acid by mild periodate was verified with monoclonal antibody to sialyl Lewisx-related structures and resistance to neuraminidase. The addition of cyanoborohydride to leukocytes rolling through L-selectin on

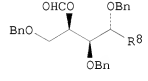
mildly oxidized but not native CD34 caused arrest of rolling cells and formation of EDTA-resistant bonds to the substrate, suggesting that a Schiff base was reduced. Cyanoborohydride reduction of mildly oxidized cells rolling on P-selectin and E-selectin also caused arrest and formation of EDTA-resistant bonds but with slower kinetics. These data suggest that interactions with a sialic acid aldehyde group on mildly oxidized ligands that include interconversion to a Schiff base can occur with three selectins yet only stabilize binding through the selectin with the fastest koff, L-selectin.

AN 1996:153210 HCAPLUS <<LOGINID::20090828>>
DN 124:229871
OREF 124:42609a,42612a
TI A Schiff base with mildly oxidized carbohydrate ligands stabilizes L-selectin and not P-selectin or E-selectin rolling adhesions in shear flow
AU Puri, Kamal D.; Springer, Timothy A.
CS Center for Blood Res., Harvard Medical School, Boston, MA, 02115, USA
SO Journal of Biological Chemistry (1996), 271(10), 5404-13
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
OSC.G 16 THERE ARE 16 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

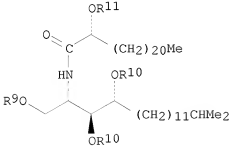
L11 ANSWER 9 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Preparation of novel sphingoglycolipid and use thereof
GI



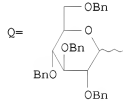
I



II



III



AB Sphingoglycolipids (I; x = 10-24; yr = 9-13; R1 = hexosyl, pentosyl, deoxyhexosyl, aminohexosyl, N-acetylaminohexosyl, a halogenated derivative of any of them, or a sialic acid residue; R2, R3 = H, OH,

galactosyloxy or glucosyloxy; R4 = galactosyl or H; R5 = Me or iso-Pr; R6 = R7 H; R6 and R7 are combined together to represent a double bond between the carbon atoms to which they are bonded; provided that the case where R1 represents α-galactosyl and R4 represents H is excluded) are prepared I is efficacious even when administered in a small amount, shows reduced side effects, and has antitumor and immunopotentiating activities. Thus, Wittig reagent BrPh3P(CH2)8CH:CHCHMe2 was treated with BuLi in hexane/THF at -10° and condensed with aldehyde (II; R8 = CHO, Bn = CH2Ph) at room temperature for 15 h to give 67.6% diolefin II [R = CH:CH(CH2)7CH:CHCHMe2] which was converted into amino alc. (III; R9 = H, R10 = Bz, R11 = Ac) and then glycosidated with 2,3,4,6-tetra-O-benzyl-D-glucopyranosyl fluoride in the presence of SnCl2, AgClO4, and 4A mol. sieve in THF at -10° to room temperature to give a mixture of α- and β-glucoside III (R9 = Q, R10 = Bz, R11 = Ac) in 55.1% yield. The latter mixture was hydrogenolyzed over Pd black in THF, deacylated with NaOMe in MeOH, acetylated by Ac2O in pyridine, separated by silica gel chromatog., and deacetylated with NaOMe in MeOH to give α-glucoside III (R9 = α-D-glucopyranosyl, R10 = R11 = H) (IV) and β-glucoside III (R9 = β-D-glucopyranosyl, R10 = R11 = H) (V). IV and V administered to mice at 0.1 mg/kg on day 1, 5, and 9 inhibited 66.2 and 35.9%, resp., the proliferation of B16 mouse melanoma cells transplanted under skin of mice.

AN 1995:297454 HCAPLUS <<LOGINID::20090828>>
DN 122:81886
OREF 122:15575a,15578a
TI Preparation of novel sphingoglycolipid and use thereof
IN Akimoto, Koji; Koezuka, Yasuhiko
PA Kirin Beer K.K., Japan
SO PCT Int. Appl., 114 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9409020	A1	19940428	WO 1993-JP1523	19931022 <--
	W: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, UZ, VN				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2147629	A1	19940428	CA 1993-2147629	19931022 <--
	CA 2147629	C	20050322		
	AU 9352860	A	19940509	AU 1993-52860	19931022 <--
	AU 683026	B2	19971030		
	EP 666268	A1	19950809	EP 1993-923043	19931022 <--
	EP 666268	B1	20000419		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	AT 191916	T	20000515	AT 1993-923043	19931022 <--
	JP 3717512	B2	20051116	JP 1994-509848	19931022 <--
	US 5849716	A	19981215	US 1995-416917	19950421 <--
PRAI	JP 1992-308124	A	19921022	<--	
	WO 1993-JP1523	W	19931022	<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OS MARPAT 122:81886
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 10 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Transfer of modified sialic acids by Trypanosoma cruzi

trans-sialidase for attachment of functional groups to oligosaccharide
AB The donor specificity of Trypanosoma cruzi trans-sialidase (TcTs) has been investigated with modified 2-[4-methylumbelliferone]-α-ketoside of N-acetyl-D-neuraminic acid (4MU-NANA) as donor and lactose as acceptor. 4MU-NANA was treated with periodate under mild conditions to generate an aldehyde on the exocyclic side chain. The oxidized 4MU-NANA was derivatized with various primary amines by reductive amination to yield potential donors. High-performance anion-exchange chromatog. equipped with pulsed amperometric detector was used to assay the transglycosylation activity of TcTs. Several modified 4MU-NANA derivs. served as substrates by TcTs and they may be utilized to make valuable intermediates, including those for fluorescence energy transfer measurement or photoaffinity labeling experiment
AN 1994:264321 HCAPLUS <<LOGINID::20090828>>
DN 120:264321
OREF 120:46657a,46660a
TI Transfer of modified sialic acids by Trypanosoma cruzi trans-sialidase for attachment of functional groups to oligosaccharide
AU Lee, Kyung Bok; Lee, Yuan Chuan
CS Dep. Biol., Johns Hopkins Univ., Baltimore, MD, 21218, USA
SO Analytical Biochemistry (1994), 216(2), 358-64
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
OSC.G 21 THERE ARE 21 CAPLUS RECORDS THAT CITE THIS RECORD (21 CITINGS)

L11 ANSWER 11 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Group B Streptococcus type II polysaccharide-tetanus toxoid conjugate vaccine
AB Group B streptococci (GBS) are the most common cause of bacterial sepsis and meningitis in neonates in the United States. Although the capsular polysaccharide of GBS is an important virulence factor, it is variably immunogenic in humans. The authors increased the immunogenicity of GBS type II polysaccharide by coupling it to tetanus toxoid (TT). Like other GBS capsular polysaccharides, the type II polysaccharide has side chains terminating in sialic acid. Controlled periodate oxidation of native II polysaccharide resulted in the conversion of 7% of sialic acid residues to an analog of sialic acid, 5-acetamido-3,5-dideoxy-D-galactosyloctulosonic acid. TT was conjugated to free aldehyde groups created on the oxidized sialic acid residues by reductive amination. Serum from rabbits vaccinated with type II-TT conjugate (II-TT) vaccine contained antibodies specific to type II polysaccharide as well as to TT, whereas rabbits vaccinated with uncoupled native type II polysaccharide failed to produce a type-specific antibody response. Antibodies elicited by II-TT vaccine were serotype specific and mediated phagocytosis and killing in vitro of type II GBS by human peripheral blood leukocytes. Serum from rabbits vaccinated with II-TT vaccine provided 100% protection in a mouse model of GBS type II infection. Antibodies induced by II-TT vaccine were specific for the native but not desialylated type II polysaccharide, suggesting that an important antigenic epitope of II-TT vaccine was dependent on the presence of sialic acid. Therefore, the coupling strategy which selectively modified a portion of the sialic acid residues of type II polysaccharide before coupling the polysaccharide to TT preserved the epitope essential to protective immunity and enhanced the immunogenicity of the polysaccharide.
AN 1993:78831 HCAPLUS <<LOGINID::20090828>>
DN 118:78831
OREF 118:13815a,13818a
TI Group B Streptococcus type II polysaccharide-tetanus toxoid conjugate vaccine

AU Paoletti, Lawrence C.; Wessels, Michael R.; Michon, Francis; DiFabio, Jose; Jennings, Harold J.; Kasper, Dennis L.
CS Channing Lab., Brigham Women's Hosp., Boston, MA, 02115, USA
SO Infection and Immunity (1992), 60(10), 4009-14
CODEN: INFIBR; ISSN: 0019-9567
DT Journal
LA English
OSC.G 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS RECORD (20 CITINGS)

L11 ANSWER 12 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Conjugates of a glycoprotein with a nucleic acid-binding substance to induce cell transfection in gene therapy
AB A glycoprotein (e.g. transferrin, HIV envelope glycoprotein gp120, or a monoclonal antibody to a cell surface protein) is attached to a nucleic acid-binding substance (preferably a homologous polycationic polypeptide, e.g. polylysine, histone, protamine, DNA-binding protein) by oxidizing the carbohydrate moiety of the glycoprotein to the aldehyde form and coupling the aldehyde groups to amino groups on the nucleic acid-binding substance. Nucleic acid bound by the conjugate is taken up by cells which express on their surface a protein which binds the glycoprotein. Thus, human transferrin was oxidized with NaIO4 and conjugated with poly-L-lysine and the product was reduced with NaBH3CN and complexed with Fe3+ and a plasmid containing the luciferase gene from Photinus pyralis and a promoter. The complex was used to transfect K562 erythroleukemia cells via the transferrin receptor; the transfected cells expressed luciferase.
AN 1993:33950 HCAPLUS <<LOGINID::20090828>>
DN 118:33950
OREF 118:6087a,6090a
TI Conjugates of a glycoprotein with a nucleic acid-binding substance to induce cell transfection in gene therapy
IN Birnstiel, Max L.; Cotten, Matthew; Wagner, Ernst
PA Genentech, Inc., USA; Boehringer Ingelheim International G.m.b.H.
SO Ger. Offen., 16 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4115038	A1	19921112	DE 1991-4115038	19910508 <--
	CA 2105771	A1	19921109	CA 1992-2105771	19920501 <--
	WO 9219281	A2	19921112	WO 1992-EP953	19920501 <--
	WO 9219281	A3	19930204		
	W: CA, JP, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
	EP 584118	A1	19940302	EP 1992-909423	19920501 <--
	EP 584118	B1	20000927		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE				
	JP 06507158	T	19940811	JP 1992-508535	19920501 <--
	JP 3351524	B2	20021125		
	AT 196608	T	20001015	AT 1992-909423	19920501 <--
	ES 2150421	T3	20001201	ES 1992-909423	19920501 <--
	GR 3035006	T3	20010330	GR 2000-402697	20001206 <--
PRAI	DE 1991-4115038	A	19910508	<--	
	WO 1992-EP953	W	19920501	<--	

OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 13 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI A carbohydrate-directed heterobifunctional cross-linking reagent for the synthesis of immunoconjugates

AB A novel, highly water-soluble, heterobifunctional crosslinking reagent, S-(2-thiopyridyl)-L-cysteine hydrazide (TPCH), was synthesized which contains a hydrazide moiety for coupling to aldehyde groups generated in the carbohydrate residues of antibodies by mild periodate oxidation, and a pyridyl disulfide moiety for coupling to mols. with a free sulfhydryl group. Since the carbohydrate moieties are distal to the antigen binding region of antibodies, derivatization with this crosslinker minimizes impairment of the antigen binding function. Derivatization of the human monoclonal IgM antibody 16-88 against human colon carcinoma cells with as many as 16 TPCH crosslinker mols. did not impair its antigen binding capability. Using mild oxidation conditions for antibody derivatization, sialic acid residues were identified as attachment sites for the crosslinker mols., since after desialylation of antibody 16-88 by neuraminidase virtually no crosslinker mols. could be incorporated. Comparison of TPCH with S-(2-thiopyridyl)mercaptopropionic acid hydrazide and S-(2-thiopyridyl)-L-cysteine, 2 related crosslinking reagents, revealed that TPCH is most efficiently incorporated into periodate-treated antibody. Based on the structural differences of the crosslinkers, the more efficient incorporation of TPCH appears to be a function of the presence of a hydrazide moiety with an adjacent amino group. When 3-4 mols. of pyridyl disulfide-derivatized barley toxin were coupled to TPCH-derivatized antibody 16-88, the antigen binding capability remained uncompromised. In addition, no significant impairment of toxin activity upon coupling to the antibody was observed Based on these data, TPCH may be very useful for the synthesis of immunoconjugates with no or only minimal impairment of the antigen binding function.
AN 1991:447343 HCAPLUS <<LOGINID::20090828>>
DN 115:47343
OREF 115:8197a,8200a
TI A carbohydrate-directed heterobifunctional cross-linking reagent for the synthesis of immunoconjugates
AU Zara, Jane J.; Wood, Richard D.; Boon, Peter; Kim, Chong Ho; Pomato, Nicholas; Bredehorst, Reinhard; Vogel, Carl Wilhelm
CS Dep. Biochem., Georgetown Univ., Washington, DC, 20007, USA
SO Analytical Biochemistry (1991), 194(1), 156-62
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
OSC.G 13 THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (13 CITINGS)

L11 ANSWER 14 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Immunogenicity in animals of a polysaccharide-protein conjugate vaccine against type III group B Streptococcus
AB The native capsular polysaccharide of type III group B Streptococcus elicits a specific antibody response in only 60% of nonimmune human subjects. To enhance the immunogenicity of this polysaccharide, the type III polysaccharide was coupled to tetanus toxoid. Prior to coupling, aldehyde groups were introduced on the polysaccharide by controlled periodate oxidation, resulting in the conversion of 25% of the sialic acid residues of the polysaccharide to residues of the 8-carbon analog of sialic acid, 5-acetamido-3,5-dideoxy-D-galactosyloctulosonic acid. Tetanus toxoid was conjugated to the polysaccharide by reductive amination, via the free aldehyde groups present on the partially oxidized sialic acid residues. Rabbits vaccinated with the conjugate vaccine produced IgG antibodies that reacted with the native type III group B streptococcal polysaccharide, while rabbits immunized with the unconjugated type III polysaccharide failed to respond. Sera from animals receiving conjugate vaccine opsonized type III group B streptococci for phagocytic killing by human peripheral blood leukocytes, and protected mice against lethal challenge with live type III group B streptococci.

The results suggest that this method of conjugation to a carrier protein may be a useful strategy to improve the immunogenicity of the type III group B Streptococcus polysaccharide in human subjects.

AN 1990:629149 HCAPLUS <<LOGINID::20090828>>
DN 113:229149
OREF 113:38645a,38648a
TI Immunogenicity in animals of a polysaccharide-protein conjugate vaccine against type III group B Streptococcus
AU Wessels, Michael R.; Paoletti, Lawrence C.; Kasper, Dennis L.; DiFabio, Jose L.; Michon, Francis; Holme, Kevin; Jennings, Harold J.
CS Channing Lab., Brigham and Women's Hosp., Boston, MA, 02115, USA
SO Journal of Clinical Investigation (1990), 86(5), 1428-33
CODEN: JCINAO; ISSN: 0021-9738
DT Journal
LA English
OSC.G 72 THERE ARE 72 CAPLUS RECORDS THAT CITE THIS RECORD (72 CITINGS)

L11 ANSWER 15 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Enzymic oxidation of monoclonal antibodies by soluble and immobilized bifunctional enzyme complexes
AB Site-specific modification of monoclonal antibodies was achieved by oxidation of the carbohydrate moieties of antibodies which are located remote from the antigen binding sites. Sialic acid and galactose are terminal sugars of these carbohydrate chains. Concomitant treatment of the antibodies with neuraminidase and galactose oxidase generated aldehyde groups in the oligosaccharide moieties of Igs which reacted selectively with amino or hydrazide groups of the matrix. Subsequent immobilization of neuraminidase and galactose oxidase on Eupergit C-adipic dihydrazide proved to be an efficient and selective system for the enzymic oxidation of the monoclonal antibodies without impairing their immunol. activity. Oriented immobilization of enzymically oxidized monoclonal antibodies on hydrazide or amino Eupergit C derivs. thus leads to the formation of antibody matrix conjugates which possess high antigen-binding activities.
AN 1990:495760 HCAPLUS <<LOGINID::20090828>>
DN 113:95760
OREF 113:16151a,16154a
TI Enzymic oxidation of monoclonal antibodies by soluble and immobilized bifunctional enzyme complexes
AU Solomon, Beka; Koppel, Rela; Schwartz, Fidi; Fleminger, Gideon
CS George Wise Fac. Life Sci., Tel-Aviv Univ., Tel-Aviv, 69978, Israel
SO Journal of Chromatography (1990), 510, 321-9
CODEN: JOCRAM; ISSN: 0021-9673
DT Journal
LA English
OSC.G 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

L11 ANSWER 16 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Description and application of an immunological detection system for analyzing glycoproteins on blots
AB By introducing the steroid hapten digoxigenin specifically into sugars, a sensitive detection system for glycoproteins on blots has been developed. Sugars are oxidized to obtain aldehyde groups, which then react with digoxigenin-succinyl-ε-amido caproic acid hydrazide. A high-affinity antibody, conjugated to alkaline phosphatase, is used for the detection of the incorporated digoxigenin. This system allows the detection of nanogram-amts. of glycoproteins on blots, and it's specificity allows a clear distinction of a glycoprotein from a non-glycoprotein. In combination with endo- and exoglycosidases, it is very useful for determining the type of carbohydrate linkage in a glycoprotein, and by varying the oxidation conditions, specific labeling of sialic

acids and terminal galactoses can be achieved.
AN 1990:402848 HCAPLUS <<LOGINID::20090828>>
DN 113:2848
OREF 113:575a,578a
TI Description and application of an immunological detection system for analyzing glycoproteins on blots
AU Haselbeck, Anton; Hoesel, Wolfgang
CS Biochem. Res. Cent., Boehringer Mannheim G.m.b.H., Tutzing, D-8132, Germany
SO Glycoconjugate Journal (1990), 7(1), 63-74
CODEN: GLJOEW; ISSN: 0282-0080
DT Journal
LA English
OSC.G 28 THERE ARE 28 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)

L11 ANSWER 17 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Modification of sialyl residues of glycoconjugates by reductive amination. Characterization of the modified sialic acids
AB The sialic acid residues of α1-acid glycoprotein and fetuin were modified by introduction of an amino residue, such as glycine and [3H]glycine. This modification involved (1) the selective periodate oxidation of the exocyclic carbon atoms of the sialic acid residue generating an aldehyde group at C-7, and (2) the reduction of the Schiff base formed with an amino compound by use of Na cyanoborohydride. Thin layer chromatog., HPLC, and amino acid composition data of the modified glycoprotein showed that the conversion was essentially quant. The glycine-modified sialic acids were isolated by mild acid hydrolysis and identified by GC-mass spectroscopy and NMR spectroscopy, thus confirming that the quant. modification produced a glycine-aminated C-7 sialic acid analog. Strong acid hydrolysis of the glycine-modified sialic acid yielded a fragment that had chromatog. characteristics similar to those of glycine.
AN 1989:188834 HCAPLUS <<LOGINID::20090828>>
DN 110:188834
OREF 110:31255a,31258a
TI Modification of sialyl residues of glycoconjugates by reductive amination. Characterization of the modified sialic acids
AU Murray, Marianne C.; Bhavanandan, Veerasingham P.; Davidson, Eugene A.; Reinhold, Vernon
CS Milton S. Hershey Med. Cent., Pennsylvania State Univ., Hershey, PA, 17033, USA
SO Carbohydrate Research (1989), 186(2), 255-65
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
OSC.G 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

L11 ANSWER 18 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Modification and introduction of various radioactive labels into the sialic acid moiety of sialoglycoconjugates
AB A method for modifying and isotopic labeling the sialyl moiety of sialoglycoproteins is described. The basis of the procedure is the reductive amination of the exocyclic aldehyde group, generated on sialic acid by mild periodate oxidation, with a variety of amino compds. and sodium cyanoborohydride. Optimal conditions were selected to obtain maximum modification of sialic acid and minimal nonspecific incorporation of the amino compound (glycine). The glycine-modified model glycoproteins (α1-acid glycoprotein, fetuin) yielded single homogenous peaks upon gel filtration and on ion-exchange chromatog. Upon gel electrophoresis, a major band accounting for 92-98%

of the modified glycoprotein and two minor bands consisting of dimers and trimers of the glycoprotein were observed The modification did not alter the ability of the sialoglycoproteins to bind to wheat germ agglutinin-Sepharose or to interact with antibodies. The modified sialic acid was only partially released by mild acid hydrolysis, suggesting that the introduction of an amino compound into the polyol chain of sialic acid has a stabilizing effect on the ketosidic linkage of the sugar. Interestingly, the modification rendered the sialic acid resistant to a variety of sialidases. The potential uses of this modification procedure include the following: (1) the introduction of different isotopic labels (3H, 14C, 35S, 125I) into the sialic acid moiety of glycoproteins; (2) the prepns. of biol. active sialoglycoprotein (hormones, enzymes, cofactors) with increased circulating half-lives in animals; (3) the preparation of substrates to search for endoglycosidases; (4) the direct comparison of sialoglycoprotein patterns obtained in small amts. from normal and pathol. cells or tissues; and (5) the isolation and purification of cell surface sialoglycoproteins.

AN 1989:150862 HCAPLUS <<LOGINID::20090828>>
DN 110:150862
OREF 110:24864h,24865a
TI Modification and introduction of various radioactive labels into the sialic acid moiety of sialoglycoconjugates
AU Bhavanandan, V. P.; Murray, Marianne; Davidson, Eugene A.
CS M. S. Hershey Med. Cent., Pennsylvania State Univ., Hershey, PA, 17033, USA
SO Glycoconjugate Journal (1988), 5(4), 467-84
CODEN: GLJOEW; ISSN: 0282-0080
DT Journal
LA English
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 19 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI N-acetylated and N-propionylated meningococcal group B polysaccharide for conjugate vaccine
AB A modified group B polysaccharide of Neisseria meningitidis having sialic acid residue N-acetyl groups replaced with N-propionyl groups is prepared and conjugated to a physiol. acceptable protein e.g. tetanus toxoid. This conjugate vaccine raises high titers of high affinity group B IgG antibodies and is useful against meningitis caused by group B N. meningitidis or by Escherichia coli KI. The group B meningococcal polysaccharide (GBMP) was treated with 2M NaOH at 105°-110° for >6 h and the fully N-deacetylated GBMP was N-propionylated in saturated aqueous NaHCO3 with propionic anhydride. The modified polysaccharide was conjugated to tetanus toxoid through a terminal aldehyde group by controlled periodate oxidation of the polysaccharide followed by reductive amination. The conjugate induced significantly enhanced levels of GBMP-specific antibodies in mice and rabbits and the level of these antibodies was boosted with successive immunizations.
AN 1988:534961 HCAPLUS <<LOGINID::20090828>>
DN 109:134961
OREF 109:22389a,22392a
TI N-acetylated and N-propionylated meningococcal group B polysaccharide for conjugate vaccine
IN Jennings, Harold J.; Roy, Rene; Gamian, Andrzej
PA Canadian Patents and Development Ltd., Can.
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4727136	A	19880223	US 1985-782384	19851001 <--
	CA 1261320	A1	19890926	CA 1986-519483	19860930 <--

PRAI US 1985-782384 A 19851001 <--
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OSC.G 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 20 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Biocytin hydrazide - a selective label for sialic acids, galactose, and other sugars in glycoconjugates using avidin-biotin technology
AB Biocytin hydrazide, a new, water-soluble, long-chained, biotin-containing hydrazide, was synthesized and used for the selective nonradioactive detection of glycoconjugates. Procedures were developed for labeling glycoconjugates on blots. The method involves either chemical (periodate-induced) or enzymic (via galactose oxidase) oxidation of glycoconjugates, the resultant aldehyde groups are then labeled with biocytin hydrazide, followed by interaction with an avidin-based enzyme probe. Since the biotin-containing reagent is a relatively small, charged mol., the primary labeling step may be carried out on intact cells and on membrane prepns. as well as on blotted samples. On blots, the labeling pattern was similar for both periodate- and galactose oxidase-induced biotinylation procedures. In contrast, periodate -induced labeling of either erythrocyte membranes or cells (prior to blotting) produced an altered labeling pattern. Combined enzyme-induced biotinylation of membranes or cells resulted in a pattern similar to that observed for the direct staining of blots. Using galactose oxidase on human erythrocyte membranes, the procedure was sensitive enough to selectively label the Band 3 lactosaminoglycoprotein.
AN 1988:451058 HCAPLUS <<LOGINID::20090828>>
DN 109:51058
OREF 109:8535a,8538a
TI Biocytin hydrazide - a selective label for sialic acids, galactose, and other sugars in glycoconjugates using avidin-biotin technology
AU Bayer, Edward A.; Ben-Hur, Haya; Wilchek, Meir
CS Dep. Biophy., Weizmann Inst. Sci., Rehovot, 76100, Israel
SO Analytical Biochemistry (1988), 170(2), 271-81
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
OSC.G 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS RECORD (33 CITINGS)

L11 ANSWER 21 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent gangliosides
AB Preparation of fluorescent derivs. of gangliosides by covalent attachment of fluorophors to the sialic acid residues of gangliosides is described. Gangliosides were oxidized with periodate under mild conditions which generate aldehyde groups only on the sialic acid residues. The aldehyde groups reacted with fluorescent dyes which contained a hydrazide group to form a Schiff base, which subsequently was stabilized by reduction
AN 1987:493018 HCAPLUS <<LOGINID::20090828>>
DN 107:93018
OREF 107:15139a,15142a
TI Fluorescent gangliosides
AU Spiegel, Sarah
CS Natl. Inst. Neurol. Commun. Disord. Stroke, Natl. Inst. Health, Bethesda,

MD, 20892, USA
SO Methods in Enzymology (1987), 138(Complex Carbohydr., Pt. E), 313-18
CODEN: MENZAU; ISSN: 0076-6879
DT Journal
LA English
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 22 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Behavior of aldehyde moieties involved in the activation of suppressor cells by sodium periodate
AB The treatment of mouse spleen cells with periodate at the optimal mitogenic concentration (1 mM) induces the activation of suppressor cells of the in vitro antibody response and leads to the formation of aldehydes on the carbohydrate termini of the surface sialoglycoconjugates. These aldehyde moieties are found on the C8 (N-AN 8) and the C7 (N-AN 7) derivs. of sialic acid. Immediate borohydride reduction prevents the activation of the suppressor cells. Data from this work show that borohydride reduction must be performed within the first 6 h to prevent the generation of suppressor cells; 18 h after the initial periodate oxidation, borohydride treatment did not reverse the in vitro suppressive activity of periodate-treated cells. The kinetics of the disappearance of aldehydes from the cell surface were studied by using [3H]borohydride labeling and chromatog. anal. of sialic acid derivs. About 70-80% of the aldehyde moieties were present 6 h after periodate oxidation After 18 h, 50-70% of the aldehyde had disappeared from the lymphocyte membrane. Oxidized sialyl residues disappear completely after 60 h of culture. This period corresponds to the de novo synthesis of sialic acid residues on the surface of periodate -activated cells. The 2 classes of oxidized sialylglucoconjugates behaved in different ways. The aldehydes remaining at 18 h are mainly located on the gangliosides, whereas the aldehyde moieties located on high mol. weight glycoproteins disappear from the cell surface between 9 and 18 h. This would suggest that the remaining aldehydes located on gangliosides are not directly involved in the expression of suppressive activity.
AN 1987:136821 HCAPLUS <<LOGINID::20090828>>
DN 106:136821
OREF 106:22315a,22318a
TI Behavior of aldehyde moieties involved in the activation of suppressor cells by sodium periodate
AU Dehoux-Zenou, Suzanne M.; Guenounou, Moncef; Zinbi, Hassan; Ougen, Pierre; Couderc, Remi; Agneray, Jean C.
CS Dep. Biochim., UER Sci. Pharm. Biol., Chatenay-Malabry, 92290, Fr.
SO Journal of Immunology (1987), 138(4), 1157-63
CODEN: JOIMA3; ISSN: 0022-1767
DT Journal
LA English

L11 ANSWER 23 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI A high-capacity affinity gel for the purification of the testicular lutropin receptor
AB The lutropin (LH) receptor from porcine testes was solubilized with 1% Triton X-100. The final solution was centrifuged at 100,000 + g and the supernatant was concentrated on a PM30 Amicon membrane. The concentrate was then specifically retained on an affinity gel with human choriogonadotropin (hCG) covalently linked by its sugar moiety. The agarose affinity gel bore adipic acid hydrazide spacer arms (6 C length). Prior to coupling,

the subunits of hCG were crosslinked with 1-ethyl-3-(dimethylamino propyl)carbodiimide and the sialic acid residues were subjected to periodate oxidation to yield aldehyde groups which could react with the hydrazides of the gel. 90% Of the receptor contained in the solution incubated with this gel was retained and eluted at pH 3.2 with a purification factor > 700, vs. a 26% yield and a purification factor of 40 with an affinity gel bearing hCG linked through its lysine ε-amines.

AN 1986:549084 HCAPLUS <<LOGINID::20090828>>
DN 105:149084
OREF 105:23963a,23966a
TI A high-capacity affinity gel for the purification of the testicular lutropin receptor
AU Jalal, Bahija; Salesse, Roland; Garnier, Jean
CS Lab. Biochim. Phys., Univ. Paris-Sud, Orsay, 91405, Fr.
SO Comptes Rendus de l'Academie des Sciences, Serie III: Sciences de la Vie (1986), 303(3), 73-6
CODEN: CRASEV; ISSN: 0764-4469
DT Journal
LA French

L11 ANSWER 24 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Reversal of murine alveolar macrophage-mediated suppression of plaque-forming cell response by sodium periodate
AB Murine alveolar macrophages (AM) have been shown to suppress the in vitro plaque-forming cell (PFC) response of spleen cells previously primed with sheep erythrocytes in a dose-dependent manner. Mild oxidation of cell membranes on viable AM with Na periodate resulted in total abrogation of AM-mediated suppression of the PFC response, while periodate treatment of spleen cells resulted only in partial reduction of the suppression. Pretreatment of AM with Na periodate followed by addition of the aldehyde blocking agent, hydroxylamine, resulted in restoration of the PFC-suppressing activity of AM. Periodate treatment of AM also resulted in significantly increased macrophage-T-cell binding and cluster formation. Apparently, the generation of aldehyde moieties on AM membrane sialoglycoconjugates promotes pos. macrophage-lymphocyte interactions, resulting in abrogation of AM-mediated suppression of the PFC response.
AN 1986:223399 HCAPLUS <<LOGINID::20090828>>
DN 104:223399
OREF 104:35425a,35428a
TI Reversal of murine alveolar macrophage-mediated suppression of plaque-forming cell response by sodium periodate
AU Mbawuike, Innocent N.; Luhr, Jordan E.; Herscowitz, Herbert B.
CS Sch. Med. Dent., Georgetown Univ., Washington, DC, 20007, USA
SO Cellular Immunology (1986), 99(1), 300-7
CODEN: CLIMB8; ISSN: 0008-8749
DT Journal
LA English

L11 ANSWER 25 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent derivatives of ganglioside GM1 function as receptors for cholera toxin
AB A fluorescent derivative of ganglioside GM1 was prepared by oxidation of the sialic acid residue with NaIO4 and reaction of the resulting aldehyde with Lucifer Yellow CH. The biol. activity of the fluorescent derivative was compared with that of native GM1 using GM1-deficient rat glioma C6 cells. When the cells were exposed to either native or fluorescent GM1, their ability to bind [125I]cholera toxin was increased to a similar extent. This increase in binding was directly

proportional to the amount of ganglioside added to the medium. The affinity of the toxin for cells treated with either native or fluorescent GM1 also was similar. More importantly, the fluorescent GM1 was as effective as native GM1 in enhancing the responsiveness of the cells to cholera toxin. Thus, the ganglioside-treated cells exhibited a 9-fold increase in toxin-stimulated cAMP [60-92-4] production over cells not exposed to GM1. There was a similar increase in iodotoxin binding and toxin-stimulated cAMP accumulation in cells treated with other GM1 derivs. containing rhodaminyl or dinitrophenyl groups. On the basis of these results, it is clear that these modified gangliosides retain the ability to function as receptors for cholera toxin. Consequently, fluorescent gangliosides are likely to be useful as probes for investigating the dynamics and function of these membrane components.

AN 1985:555529 HCAPLUS <<LOGINID::20090828>>
DN 103:155529
OREF 103:24835a,24838a
TI Fluorescent derivatives of ganglioside GM1 function as receptors for cholera toxin
AU Spiegel, Sarah
CS Membr. Biochem. Sect., Natl. Inst. Neurol. Commun. Disord., Bethesda, MD, 20205, USA
SO Biochemistry (1985), 24(21), 5947-52
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L11 ANSWER 26 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Complement activation by polymer binding IgG
AB Immobilized IgG on polymer carriers activates complement on contact with the serum. Complement fragments bound to polymers were detected by the agglutination of the polymer microspheres with the corresponding antisera or rosette formation with cells having complement receptors. Without the immobilization of IgG, polymers having amino, carboxyl, cyano or Ph groups activated complement in the serum, whereas the presence of hydroxyl and carbamoyl groups in polymers did not cause complement activation. When intact IgG was bound to poly(glyceryl methacrylate) by the use of glutaraldehyde, the IgG-polymer conjugate activated complement in spite of the inertness of the polymer itself. The polymers immobilizing F(ab')2 activated complement less than the polymers immobilizing intact IgG. When dextran aldehyde prepared by periodate oxidation of dextran was used as a binder instead of glutaraldehyde, complement activation by F(ab')2-polymer conjugate was remarkably reduced, though antibody activity for binding the antigen remained. These results should be taken into consideration in the design of an immunosorption therapy.
AN 1985:84363 HCAPLUS <<LOGINID::20090828>>
DN 102:84363
OREF 102:13171a,13174a
TI Complement activation by polymer binding IgG
AU Uchida, T.; Hosaka, S.; Murao, Y.
CS Bas. Res. Lab., Toray Ind. Inc., Kamakura, 248, Japan
SO Biomaterials (1984), 5(5), 281-3
CODEN: BIMADU; ISSN: 0142-9612
DT Journal
LA English

L11 ANSWER 27 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Use of ferritin hydrazide for the detection of sialoglycoconjugates. I. Methodological aspects
AB The technique for electron microscopic detection of cell surface sialoglycoconjugates with a ferritin hydrazide tracer applied to the cells

after preferential oxidation of sialyl residues, initially developed for cells in suspension, was adapted for use in various in vitro and in situ systems. By using a test system the agglutination of oxidized erythrocytes by ferritin hydrazide, optimal conditions were found to use the technique in conjunction with aldehyde fixatives and cell culture media. Possible side effects induced by the oxidation and binding of ferritin hydrazide to cell surface components also are presented.
AN 1984:626131 HCAPLUS <<LOGINID::20090828>>
DN 101:226131
OREF 101:34247a,34250a
TI Use of ferritin hydrazide for the detection of sialoglycoconjugates. I. Methodological aspects
AU Muresan, Virgil; Constantinescu, Marius
CS Inst. Cell. Biol. Pathol., Bucharest, 79691, Rom.
SO Revue Roumaine de Biochimie (1984), 21(3), 189-97
CODEN: RRBCAD; ISSN: 0001-4214
DT Journal
LA English

L11 ANSWER 28 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI In vitro labeling of the sialic acid moiety of glycoconjugates with carbon-14
AB Labeling of sialoglycoproteins with 14C in vitro was performed by reacting the aldehyde groups, generated by mild periodate oxidation of the terminal sialyl groups, with Na14CN to produce the labeled cyanohydrin derivs. (Kiliani reaction). Labeling with 3H was carried out by reduction of the aldehyde groups generated on the sialyl residues with NaB3H4 following standard procedures. The behavior of both types of labeled specimens of fetuin and ovine submaxillary mucin, individually and in mixts., was investigated by gel chromatog., gel electrophoresis, and CsBr gradient ultracentrifugation. The labeled sialyl residues were subjected to partial characterization: color yield with the resorcinol and thiobarbituric acid reagents, behavior on ion-exchange chromatog., and susceptibility to mild acid and enzymic hydrolyses. In addition to these model glycoproteins, this procedure was also utilized to label the sialoglycoproteins present in human tracheobronchial secretions collected from normal subjects and patients with chronic bronchitis. The potential uses of this approach for comparative studies of normal and pathol. sialoglycoconjugates available in minute amts. is described. The extension of this approach to the labeling of the galactosyl and N-acetylgalactosaminyl moieties of glycoconjugates following treatment with galactose oxidase is outlined.
AN 1984:206074 HCAPLUS <<LOGINID::20090828>>
DN 100:206074
OREF 100:31237a,31240a
TI In vitro labeling of the sialic acid moiety of glycoconjugates with carbon-14
AU Carubelli, R.; Wen, G.; McCaffree, D. R.
CS Biomembr. Res. Lab., Oklahoma Med. Res. Found., Oklahoma City, OK, 73104, USA
SO Analytical Biochemistry (1984), 137(2), 429-36
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English

L11 ANSWER 29 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Studies on the induction and expression of T cell-mediated immunity. XIV. Antigen-nonspecific oxidation-dependent cellular cytotoxicity (ODCC) mediated by sodium periodate oxidation of cytotoxic T lymphocytes
AB Alloimmune murine thymus-derived cytotoxic lymphocytes (CTL) generated in

vivo or in vitro are shown to lyse antigen-nonspecific target cells (tumor cells, Con A, and lipopolysaccharides blasts) following treatment of CTL with an oxidizing agent (NaIO4). The presence of reactive aldehyde groups, generated by NaIO4 modification of sialic acid residues, is required for the expression of antigen-nonspecific cytotoxicity because treatment of modified cells with KBH4 resulted in the abrogation of cytotoxicity. The modification of CTL by NaIO4 is sufficient to lead to the formation of lymphocyte-target cell conjugates and lysis of bound targets. Monoclonal antibodies directed against the Lyt-2 antigens of CTL, but not Lyt-1 antigens, in the absence of complement inhibited the nonspecific cytotoxicity resulting from NaIO4 modification of effector lymphocytes. Apparently, the mere interaction with or perturbation of appropriate cell surface mol.(s) or effector lymphocytes such as Lyt antigens by receptor-ligand interaction in antigen-specific cell-mediated cytotoxicity or by NaIO4 modification in antigen-nonspecific oxidation-dependent cytotoxicity (ODCC) may lead to the expression of cytotoxicity. The present studies demonstrate a functional role of surface carbohydrates on CTL in cell-to-cell recognition and interactions. Furthermore, the results suggest that target cell modification is not a requisite for recognition and lysis in an antigen-nonspecific cytotoxic system such as ODCC. However, partial blocking of ODCC by alloantibodies directed against the H-2 of unmodified target cells suggests that NaIO4-modified CTL recognized unrelated target H-2 antigens. The implication of these findings on the mol. mechanism of cell-mediated cytotoxicity is discussed.

AN 1983:503589 HCAPLUS <<LOGINID::20090828>>
DN 99:103589
OREF 99:15949a,15952a
TI Studies on the induction and expression of T cell-mediated immunity. XIV. Antigen-nonspecific oxidation-dependent cellular cytotoxicity (ODCC) mediated by sodium periodate oxidation of cytotoxic T lymphocytes
AU Fan, John; Bonavida, Benjamin
CS Sch. Med., UCLA, Los Angeles, CA, 90024, USA
SO Journal of Immunology (1983), 131(3), 1426-32
CODEN: JOIMA3; ISSN: 0022-1767
DT Journal
LA English
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 30 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Translocation of newly synthesized gangliosides to the cell surface
AB A new method was developed to follow the translocation of gangliosides from their site of synthesis within the cell to the plasma membrane. Cultured mouse neuroblastoma N18 and rat glioma C6 cells were labeled for increasing times with D-[1-3H]galactose and then subjected to milk oxidation with NaIO4. Under the conditions chosen, oxidation was essentially restricted to cell-surface sialic acid residues, which were converted to derivs. with an aldehyde function. The labeled gangliosides were isolated from the cells and reacted with dinitrophenylhydrazine to form dinitrophenyl (DNP) derivs. of the oxidized gangliosides. The DNP-gangliosides then were separated from their unmodified counterparts by TLC. Thus, the rate of labeling of surface gangliosides was distinguished from the rate of labeling of total gangliosides. The transfer of gangliosides from the site of synthesis to the cell surface required .apprx.20 min, and newly synthesized gangliosides appeared to be transported to the plasma membrane at a constant rate. No essential differences were found in the rates of translocation of different ganglioside species by N18 cells or between gangliosides or N18 and C6 cells.
AN 1982:436604 HCAPLUS <<LOGINID::20090828>>

DN 97:36604
OREF 97:6235a,6238a
TI Translocation of newly synthesized gangliosides to the cell surface
AU Miller-Podraza, Halina; Fishman, Peter H.
CS Membrane Biochem. Sect., Natl. Inst. Neurol. Commun. Disord. Stroke, Bethesda, MD, 20205, USA
SO Biochemistry (1982), 21(14), 3265-70
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
OSC.G 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

L11 ANSWER 31 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fluorescent labeling of the carbohydrate moieties of human chorionic gonadotropin and α1-acid glycoprotein
AB A method is described for the covalent attachment of fluorescent mols. to the sialic acid (I) residues of the carbohydrate moieties of glycoproteins by using α1-acid glycoprotein as a model, and the method was used to prepare labeled derivs. of human chorionic gonadotropin (hCG) and its subunits. The glycoproteins were oxidized with NaIO4 under mild conditions selective for I, and the generated aldehyde groups were condensed with either dansylethylenediamine (II), dansylhydrazine (III), or fluoresceinamine (IV) followed by reduction with NaCNBH3 and NaBH4 and gel filtration on Sephadex G 100 to sep. labeled protein from residual unbound dye. The eluted fractions then were analyzed for absorbance at 280 nm and for dansyl or fluorescein fluorescence. Conjugates prepared with III were unstable under conditions ranging from near physiol. to cold storage and could not be used for spectroscopic anal. The derivs. obtained with II and IV, however, were stable and their fluorescence polarization was constant for several hours at 37°. Lower degrees of labeling were obtained with IV than with II. A variety of control expts. established that terminal I residues were the prime targets of the labeling reaction. The labeling expts. did not alter the ability of the α-subunit of hCG to recombine with native β-subunit. However, the NaIO4 oxidation step may have altered the properties of the β-hCG subunit.
AN 1982:16853 HCAPLUS <<LOGINID::20090828>>
DN 96:16853
OREF 96:2807a,2810a
TI Fluorescent labeling of the carbohydrate moieties of human chorionic gonadotropin and α1-acid glycoprotein
AU Ingham, Kenneth C.; Brew, Shelesa A.
CS Am. Red Cross Plasma Derivatives Lab., Bethesda, MD, 20814, USA
SO Biochimica et Biophysica Acta, Protein Structure (1981), 670(2), 181-9
CODEN: BBPTBH; ISSN: 0005-2795
DT Journal
LA English
OSC.G 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

L11 ANSWER 32 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Ferritin hydrazide, a novel covalent electron dense reagent for the ultrastructural localization of glycoconjugates
AB Ferritin hydrazide was prepared by coupling horse spleen ferritin with an excess of bis(hydrazides) by carbodiimide activation of the protein carboxyl group. The ferritin-hydrazide was used for the 1-step direct covalent labeling and ultrastructural localization of periodate-oxidized sialyl residues, or other aldehyde groups, on cell surfaces of erythrocytes and lymphocytes. In contrast to previous approaches, which have been based on electrostatic interactions, the present method does not affect the cell surface charge. This method is

simpler than the 3-step affinity cytochem. techniques based on avidin-biotin interaction. This study represents the 1st example of covalent labeling of cell surfaces with an electron dense material.
AN 1981:79773 HCAPLUS <<LOGINID::20090828>>
DN 94:79773
OREF 94:12951a,12954a
TI Ferritin hydrazide, a novel covalent electron dense reagent for the ultrastructural localization of glycoconjugates
AU Roffman, Ehud; Spiegel, Yitzhak; Wilchek, Meir
CS Dep. Biophys., Weizmann Inst. Sci., Rehovot, Israel
SO Biochemical and Biophysical Research Communications (1980), 97(3), 1192-8
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L11 ANSWER 33 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Specific labeling of platelet membrane glycoproteins
AB The labeling of platelet membrane glycoproteins was accomplished by the oxidation of vicinal hydroxyls with periodate, followed by Schiff base formation. Two different labeling patterns were obtained with NaB3H4 or 3,5-[125I]diiodo-L-tyrosine hydrazide. In both cases, oxidation of sialic acids on glycoproteins I and III occurred. However, 3,5-[125I]diiodo-L-tyrosine hydrazide reacted mainly with groups on glycoprotein I, whereas NaB3H4 mainly reduced the aldehyde on glycoprotein III. The difference may be the result of a variation in the elec. charge of the 2 glycoproteins. Thus, these 2 reagents can also be used to identify membrane glycoproteins of other cells.
AN 1981:43583 HCAPLUS <<LOGINID::20090828>>
DN 94:43583
OREF 94:7061a,7064a
TI Specific labeling of platelet membrane glycoproteins
AU Rotman, Avner; Linder, Shoshana; Pribluda, Victor
CS Dep. Membrane Res., Weizmann Inst. Sci., Rehovot, Israel
SO FEBS Letters (1980), 120(1), 85-8
CODEN: FEBLAL; ISSN: 0014-5793
DT Journal
LA English
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 34 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Identification of carbohydrates and functional groups involved in the adhesion of neoplastic cells
AB The adhesion of cells derived from a solid Galliera sarcoma of the rat (SGS) to monolayers was increased 58% by treatment with neuraminidase. In contrast, simultaneous treatment with neuraminidase and galactose oxidase, which removes sialate residues localized at the end of the carbohydrate chain exposing galactose residues to enzymic oxidation, caused a loss of adhesion when compared to cells depleted of sialate. Treatment of SGS cells with Na periodate, which splits the C6-C7 and C7-C8 bonds of sialate with the formation of aldehyde groups on C6 and C7, caused a 68% decrease in the adhesion capacity of the cells. However, when the aldehyde groups were reduced with NaBH4 to alc. residues, a significant amount of adhesivity was recovered. Treatment of SGS cells with L-fucosidase decreased the adhesivity by 43 or 70% depending on the enzyme concentration Blocking amino groups with 10 mM bisimido-esters of adipate and suberate inhibited adhesion by 49 and 57%, resp. The transformation of carboxyl groups into amides by 1-20 mM carbodiimide in the presence of NH4OH inhibited adhesion by 20-39%. Adhesion was significantly inhibited by the blocking of SH groups.

Apparently, carbohydrates and other functional groups (e.g. cysteine) of membrane components are involved in the adhesion process.
AN 1980:547323 HCAPLUS <<LOGINID::20090828>>
DN 93:147323
OREF 93:23467a,23470a
TI Identification of carbohydrates and functional groups involved in the adhesion of neoplastic cells
AU Pippia, Proto; Ivaldi, Giorgio; Cogoli, Augusto
CS Ist. Fisiol. Gen., Univ. Sassari, Sassari, 07100, Italy
SO FEBS Letters (1980), 116(2), 281-4
CODEN: FEBLAL; ISSN: 0014-5793
DT Journal
LA English
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L11 ANSWER 35 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Notes on improved procedures for the chemical modification and degradation of glycosphingolipids
AB Some simplified and efficient procedures are described for the chemical modifications of glycosphingolipids. The olefinic bond of the ceramide moiety of the acetylated glycolipid was quant. oxidized with OsO4 and HIO4. Treatment of the resulting glycolipid aldehyde with NaOMe resulted in the release of the intact oligosaccharide. The yield of oligosaccharides under the new condition was much higher than previously found. The olefinic bond was also oxidized to a carboxyl function by either of 2 methods: (a) the aldehyde group resulting from the above oxidation was further oxidized with performic acid and (b) the olefinic bond of the fully acetylated glycolipid was oxidized directly to the acid by KMnO4 in Me2CO. The Me ester of the carboxyl group of the sialic acid in gangliosides can be formed with diazomethane in MeOH-ether after treatment of the gangliosides with Dowex-50 (H+ form). Possible uses of these glycolipid modifications are discussed.
AN 1980:510189 HCAPLUS <<LOGINID::20090828>>
DN 93:110189
OREF 93:17605a,17608a
TI Notes on improved procedures for the chemical modification and degradation of glycosphingolipids
AU MacDonald, D. L.; Patt, L. M.; Hakomori, S.
CS Div. Biochem. Oncol., Fred Hutchinson Cancer Res. Cent., Seattle, WA, 98104, USA
SO Journal of Lipid Research (1980), 21(5), 642-5
CODEN: JLPRAW; ISSN: 0022-2275
DT Journal
LA English
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L11 ANSWER 36 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI NMR spectroscopy and calcium binding of sialic acids: N-glycolylneuraminic acid and periodate-oxidized N-acetylneuraminic acid
AB The 1H and 13C NMR spectroscopy of N-glycolylneuraminic acid, and of its interaction product with Ca2+ at pH 7, indicated that a 1:1 complex is formed, with a formation constant of 193 M-1 (compared with 121 M-1 for N-acetylneuraminic acid). From anal. of elec.-field shifts, an approx. position of the Ca2+ ion in the complex is inferred, with the OH group of the N-glycolyl group providing the addnl. binding. N-Acetylneuraminic acid was oxidized with NaIO4, and 13C NMR spectroscopy was applied to identify the aldehyde formed, and to demonstrate that the loss of the glycerol-1-yl side-chain (C-8 and C-9) decreases its Ca2+-binding capacity.

AN 1980:509333 HCAPLUS <<LOGINID::20090828>>
DN 93:109333
OREF 93:17441a,17444a
TI NMR spectroscopy and calcium binding of sialic acids: N-glycolylneuraminic acid and periodate-oxidized N-acetylneuraminic acid
AU Jaques, Larry W.; Riesco, Blanca F.; Weltner, William, Jr.
CS Dep. Chem., Univ. Florida, Gainesville, FL, 32611, USA
SO Carbohydrate Research (1980), 83(1), 21-32
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L11 ANSWER 37 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effects of mitogenic periodate concentrations on human lymphocyte membrane glycoconjugates
AB Periodate oxidation of human peripheral blood lymphocytes followed by reduction with NaBH4-3H and acid hydrolysis generates a 7-C-N-acetylneuraminic acid aldehyde derivative (N-AN 7), glycerol, and propane-1,2-diol. This indicates that sialyl, fucosyl, and probably galactosyl residues are oxidized by periodate. Neuraminidase-treated lymphocytes exhibited decreased N-AN 7 levels, increased N-AN 8 levels, and increased glycerol levels. Such results were neither found with mouse splenocytes nor with calf lymph node cells.
AN 1980:196153 HCAPLUS <<LOGINID::20090828>>
DN 92:196153
OREF 92:31773a,31776a
TI Effects of mitogenic periodate concentrations on human lymphocyte membrane glycoconjugates
AU Banchereau, Jacques; Danois, Dominique; Guenounou, Moncef; Durand, Genevieve; Agneray, Jean
CS Lab. Biochem., Unite Enseign. Rech. Sci. Pharm. Biol., Chatenay-Malabry, 92290, Fr.
SO Comptes Rendus des Seances de l'Academie des Sciences, Serie D: Sciences Naturelles (1980), 290(3), 191-4
CODEN: CHDDAT; ISSN: 0567-655X
DT Journal
LA French

L11 ANSWER 38 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hepatic uptake of desialylated testosterone-estradiol-binding globulin in the rat
AB Testosterone-estradiol-binding (TeBG) isolated from bovine serum was desialylated by treatment with neuraminidase and its properties were compared with intact TeBG. No significant differences were observed in the testosterone-binding capacity or antigenic determinant, but the electrophoretic mobility of asialo-TeBG decreased slightly. When injected into the rat vein, 125I-labeled asialo-TeBG was rapidly taken up by the liver, whereas 125I-labeled intact TeBG remained in the circulation for a much longer period. Galactose oxidase treatment of asialo-TeBG, which presumably oxidized the primary alc. of galactose at C-6 to an aldehyde, caused a reversal of its survival time in the blood to that of intact TeBG. When incubated with isolated rat liver cells at 20°, the desialylated, but not intact, TeBG was rapidly taken up, and its uptake was inhibited by excess asialo-orosomucoid. Under these conditions in vitro, testosterone-3H bound to asialo-TeBG was taken up by the liver cells together with the asialo-TeBG.
AN 1979:453331 HCAPLUS <<LOGINID::20090828>>
DN 91:53331
OREF 91:8629a,8632a

TI Hepatic uptake of desialylated testosterone-estradiol-binding globulin in the rat
AU Suzuki, Yasuyuki; Sinohara, Hyogo
CS Sch. Med., Kinki Univ., Osaka, 589, Japan
SO Acta Endocrinologica (1979), 90(4), 669-79
CODEN: ACENA7; ISSN: 0001-5598
DT Journal
LA English
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L11 ANSWER 39 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The role of sialic acid and galactose residues in determining the survival of human plasma α1-antitrypsin in the blood circulation
AB After an i.v. injection of intact (NANA-7)-α1-AT (periodate -oxidized, tritiated, borohydride-reduced α1-antitrypsin) into rats, the labeled material had a circulating half-life of 18 h. When (NANA-7)-α1-AT was partially desialylated (4 residues of NANA-7 out of a total of 6 were removed, thus exposing an equivalent number of galactose residues at the terminal positions) by neuraminidase, injection into rats of this material resulted in a rapid and almost complete disappearance of the label from the circulation in 60 min. There was a concomitant accumulation of radioactivity in the liver. The rate of this rapid transfer depended on the presence of intact galactose residues as the terminal, nonreducing sugar in the carbohydrate units. Galactose oxidase treatment of the partially desialylated (NANA-7)-α1-AT, which presumably oxidized the primary alc. of galactose at C-6 to an aldehyde group, caused a reversion of its survival time in the circulation to that of the intact (NANA-7)-α1-AT.
AN 1977:118231 HCAPLUS <<LOGINID::20090828>>
DN 86:118231
OREF 86:18665a,18668a
TI The role of sialic acid and galactose residues in determining the survival of human plasma α1-antitrypsin in the blood circulation
AU Yu, Shi-Da; Gan, Jose C.
CS Med. Branch, Univ. Texas, Galveston, TX, USA
SO Archives of Biochemistry and Biophysics (1977), 179(2), 477-85
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 40 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effects of sodium periodate modification of lymphocytes on the sensitization and lytic phases of T cell-mediated lympholysis
AB Sensitization of mouse splenic lymphocytes in vitro with NaIO4-treated autologous spleen cells stimulated a one-way mixed lymphocyte reaction and led to the generation of thymus-derived cytotoxic effector cells. These effectors were capable of lysing in 4 hr periodate-treated syngeneic and, to a lesser extent, periodate-treated allogeneic target cells. Effector cells generated by allogeneic sensitization were detected on periodate-modified targets, irrespective of the H-2 antigens expressed by the targets. The effects of periodate modification on both stimulator and target cells were reversible by Na borohydride, suggesting that the biol. effects of NaIO4 are dependent on the formation of a free aldehyde group on cell surface glycoproteins. Pretreatment of stimulator cells with neuraminidase prevented the effect of periodate treatment, suggesting that the sensitization involves oxidized sialic acid residues.
Fresh spleen cells and lymphocytes cultured for 5 days without antigen or in the presence of lipopolysaccharide did not lyse periodate -treated targets. An increasing level of cytotoxicity was detected on

periodate-treated targets when the effector cells were generated, resp., by stimulation with concanavalin A, by sensitization with periodate-modified autologous cells, or by sensitization with unmodified allogeneic stimulator cells. Although the lysis of periodate-treated targets is itself nonspecific, effector cell specificity could be determined by selective blocking of the lytic phase with cells syngeneic to the stimulators. Apparently, a nonspecific interaction can occur between lymphocytes and periodate-treated target cells, but this interaction leads to lysis only when the lymphocytes are activated to become cytotoxic effectors.

AN 1976:119841 HCAPLUS <<LOGINID::20090828>>
DN 84:119841
OREF 84:19480h,19481a
TI Effects of sodium periodate modification of lymphocytes on the sensitization and lytic phases of T cell-mediated lympholysis
AU Schmitt-Verhulst, Anne M.; Shearer, Gene M.
CS Immunol. Branch, Natl. Cancer Inst., Bethesda, MD, USA
SO Journal of Immunology (1976), 116(4), 947-58
CODEN: JOIMA3; ISSN: 0022-1767
DT Journal
LA English
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L11 ANSWER 41 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The periodate/borohydride/potassium hydroxide/periodic acid-Schiff technique (with special reference to the differentiation of primary adenocarcinoma of the lung from metastases arising from adenocarcinoma of the colon)
AB This study employed cases of primary adenocarcinoma of the colon, primary adenocarcinoma of the lung, primary adenocarcinoma of the colon with associated metastases, and adenomatous polyps. Periodic acid-Schiff reagent (PAS), Alcian Blue (pH 2.5), Alcian Blue (pH 1.0) and Gomori's aldehyde fuchsin techniques were performed on the above tissues to demonstrate the presence of mucins (carboxylated and sulfated glycoproteins). The presence of O-acylated sialic acid in these glycoproteins was then proven with the use of the neuraminidase digestion and (or) acid hydrolysis before and after treatment with KOH. To demonstrate O-acylated sialic acid in the above cases, the periodate/borohydride/KOH/PAS technique was employed. A significant number of the adenocarcinomas of the colon (55%) gave a pos. staining reaction, while all cases of primary adenocarcinomas of the lung gave a neg. reaction. If the primary adenocarcinoma of the lung gave a pos. reaction, it would indicate that the tumor represented a metastasis from the large bowel.
AN 1976:103538 HCAPLUS <<LOGINID::20090828>>
DN 84:103538
OREF 84:16865a,16868a
TI The periodate/borohydride/potassium hydroxide/periodic acid-Schiff technique (with special reference to the differentiation of primary adenocarcinoma of the lung from metastases arising from adenocarcinoma of the colon)
AU Jordan, Janice
CS St. Paul's Hosp., Vancouver, BC, Can.
SO Canadian Journal of Medical Technology (1975), 37(5), 142-9
CODEN: CJMTAY; ISSN: 0008-4158
DT Journal
LA English

L11 ANSWER 42 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Role of galactose in bovine Factor V
AB Using galactose oxidase and β-galactosidase to produce modifications

of the galactose units, the functional significance of these carbohydrate residues on the coagulant activity of bovine factor V glycoprotein was evaluated. Incubation of native factor V with galactose oxidase or hydrolysis of asialo-factor V with β-galactosidase resulted in a loss of factor V activity. The inactivation of factor V by oxidation of galactose moieties was partially reversible on reduction of the newly formed aldehyde groups with Na borohydride. The extent of reversal depended on the degree of inactivation achieved. Thus, factor V which retained 30% of the original activity following galactose oxidation returned to 75% of the original coagulant activity on borohydride reduction; but, after destruction of 85% of the original activity treatment with borohydride returned to .apprx.30%. In the initial stages of the inactivation of factor V by treatment with galactose oxidase, the loss of factor V coagulant activity was directly proportional to the moles of galactose oxidized. However, as the reaction progressed, the rate of galactose oxidation exceeded the rate of loss of factor V activity. Moreover, galactose oxidation continued even after complete inactivation of factor V. The galactose residues most susceptible to attack by galactose oxidase are apparently those necessary for the activity of the protein. Only 15 galactose residues/mols of factor V were susceptible to galactose oxidase prior to removal of sialic acid. In contrast, 37 galactose residues/mole of factor V were found after acid hydrolysis, suggesting that factor V glycoprotein contains >1 type of sialyl-galactose linkages, the C2.3 or C2.4 linkages susceptible to oxidation in the native protein and the C2.6 linkage which is resistant. Native factor V bound with diarachidonyl lecithin forming an active complex of lower buoyant d.; factor V oxidized with galactose oxidase did not. The factor V-phospholipid complex was protected from inactivation by galactose oxidase. Moreover, lipid binding diminished the extent of oxidation of galactose residues. Certain galactose groups are essential for coagulant activity, probably because they are required for binding to phospholipid, a prerequisite to factor V action.

AN 1975:604301 HCAPLUS <<LOGINID::20090828>>
DN 83:204301
OREF 83:32157a,32160a
TI Role of galactose in bovine Factor V
AU Saraswathi, Seshaiyer; Colman, Robert W.
CS Dep. Med., Univ. Pennsylvania, Philadelphia, PA, USA
SO Journal of Biological Chemistry (1975), 250(20), 8111-18
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English

L11 ANSWER 43 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Membrane site modified on induction of the transformation of lymphocytes by periodate
AB Incubation of mouse spleen lymphocytes with neuraminidase [9001-67-6](50 units/ml), papain [9001-73-4](0.5 mg/ml), K borohydride [13762-51-1](1 mM), hydroxylamine [7803-49-8](1 mM), or semicarbazide [57-56-7](5 mM) decreased their blastogenic response to Na periodate [7790-28-5](1 mM) but did not affect their transformation induced by concanavalin A [11028-71-0](2 μg/ml). Different membrane sites may be involved in lymphocyte transformation induced by periodate and by concanavalin A. The periodate target site seems to include a glycoprotein complex containing sialic acid, which is oxidized and forms an aldehyde moiety essential for transformation.
AN 1973:38699 HCAPLUS <<LOGINID::20090828>>
DN 78:38699
OREF 78:6073a,6076a
TI Membrane site modified on induction of the transformation of lymphocytes

by periodate
AU Novogrodsky, Abraham; Katchalski, Ephraim
CS Dep. Biophys., Weizmann Inst. Sci., Rehovot, Israel
SO Proceedings of the National Academy of Sciences of the United States of America (1972), 69(11), 3207-10
CODEN: PNASA6; ISSN: 0027-8424
DT Journal
LA English
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L11 ANSWER 44 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Use of galactose oxidase in the histochemical examination of mucus-secreting cells
AB Tissues were fixed in 10% formolsaline, wax-embedded, and cut to 4 μ. Sections were treated with 0.4% Na borohydride containing 0.4% NaHCO3 at room temperature for 1 hr. to reduce any Schiff-staining material present. After washing in running water for 5 min., the sections were treated with a solution containing 2-3 units/ml. galactose oxidase (I) and 1% by volume catalase
in 0.03M Tris-HCl buffer, pH 7, at room temperature for 2 hrs. After washing, the sections were stained with Schiff's reagent (II) for 3 min., then rinsed in sulfurous acid for 4 min. and water for 10 min. Sections of bovine cervix taken from a cow at proestrus showed great variation in intensity from cell to cell. Ovine submaxillary gland sections were not stained, but sections incubated overnight with neuraminiclase (III) followed by I had aldehyde groups which could be stained. When the terminal nonreducing galactose and galactosamine units were oxidized with I, then blocked with aniline chloride (IV), reoxidized with I, and treated with II, no staining occurred. Sialic acid (V) was removed from IV-blocked sections by overnight incubation at 37° with 0.004% by weight III and 10-4M CaCl2 in 0.1M NaOAc buffer, pH 5.1. Treatment with I produced aldehyde groups which stained, but there was great variation from cell to cell, indicating that some V in the mucus-secreting cells of bovine cervix was linked to galacrose and galactosamine. The mucus of bovine cervical epithelium is probably heterogeneous with regard to V linkage.
AN 1965:465063 HCAPLUS <<LOGINID::20090828>>
DN 63:65063
OREF 63:11992c-e
TI Use of galactose oxidase in the histochemical examination of mucus-secreting cells
AU Roberts, G. P.; Gupta, S. K.
CS Natl. Inst. Res. Dairying, Shinfield, Reading, UK
SO Nature (London, United Kingdom) (1965), 207(4995), 425-6
CODEN: NATUAS; ISSN: 0028-0836
DT Journal
LA English
OSC.G 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L11 ANSWER 45 OF 45 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Specificity of periodic acid-Schiff reagent applied to the detection of glycoproteins
AB In solution only the polyols undergo essentially complete oxidation in 5-min. exposure to HIO4. Free sugars are not more than 60% oxidized and the degree of oxidation is appreciably less for oligosaccharides, heterosides, or cyclic sugars. Where oxidation is complete, the Schiff reaction is capable of revealing the amount of aldehyde formed if the aldehyde is HCHO. Aldehydes formed by the oxidation of oligosaccharides react to the extent of about 10% and those formed by heterosides about 7-8%. On paper electropherograms the oxidation of protein-bound sugars is responsible for only a small fraction of the

periodic acid-Schiff reagent color. Here the color is largely due to the terminal sialic acid.

AN 1962:26576 HCAPLUS <<LOGINID::20090828>>
DN 56:26576
OREF 56:5089d-f
TI Specificity of periodic acid-Schiff reagent applied to the detection of glycoproteins
AU Percheron, Francois; Paquin, Rene
CS Fac. Pharm., Paris
SO Bulletin de la Societe de Chimie Biologique (1961), 43, 367-75
CODEN: BSCIA3; ISSN: 0037-9042
DT Journal
LA Unavailable